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Mini Review

Cognitive-Behavioral Factors of Day and Night Bruxism

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Abstract

In connection with the introduction of stress-induced bruxism into the classification, personal characteristics (alexithymia, high index of aggression, hostility, personal anxiety, neuroticism) and the profile of patients (hypochondria, depression, hysteria) are described. Early maladaptive cognitive behavioral patterns of patients with bruxism are presented. Coping styles and psychosocial factors provoking relapses in patients with bruxism are detailed.

Keywords: *Bruxism; Daytime Bruxism; Nighttime Bruxism; Oral-Motor Activity; Cognitive-Behavioral Therapy; Parasomnia*

To this day, both in Russia and in foreign practice, the treatment of bruxism in adults often generates a strong feeling of powerlessness and a state of confusion among specialists. This is due to the fact that the currently proposed treatment methods are accompanied by a short remission. For example, occlusive approaches, including balancing, prosthetics, or orthodontic treatment, have not provided evidence of a long-term effect on bruxism. Other approaches, such as botulinum toxin injections, which often have ephemeral effects, and other drug treatments can sometimes be effective, but with significant side effects [3].

Relatively recently, psychological methods (cognitive behavioral therapy, progressive muscle relaxation, psychodynamic psychotherapy) aimed at reducing perceived stress (catastrophizing), oral motor dysfunctional activity used during wakefulness, have a general effect on stress-induced muscle activity during sleep have been applied in foreign practice [2].

Available foreign studies have given us the first hint that CBT can have a positive effect on nocturnal bruxism, even along with standard treatment (for example, an occlusive splint for teeth or a mouth guard) [2]. The therapeutic effect of the cognitive-behavioral approach in the treatment of TMJ dysfunction in adults has been repeatedly demonstrated in numerous clinical studies. Although the cognitive behavioral model may look deceptively simple for many doctors, using a model or protocols with high efficiency requires significant specialized training that goes beyond the usual training of a dentist, psychiatrist, psychotherapist or clinical psychologist. Thus, many "classical" forms of treatment of bruxism are not sufficient.

The central nervous system is directly related to bruxism, therefore, in our opinion, the therapeutic approach should be mainly mediated by taking into account the cognitive-behavioral functioning of the patient. Recall that bruxism is often a form of unconscious oral-motor parafunctional activity. It includes not only gnashing and clenching of teeth, but also other oral habits of the oral cavity, such as biting nails, pushing out the tongue, clenching the jaw, etc. As a result, the patient has pain in the masticatory muscles, headache, muscle fatigue, tooth wear, increased sensitivity of the teeth, "toothed tongue", shoulder-scapular syndrome, increased fatigue, anxiety, morning state of weakness, causeless night awakenings about the causes of which they do not immediately guess.

Conditionally, we can distinguish the " primary "(idiopathic) and" secondary " forms of bruxism. The primary form includes oral-motor behavior in a dream, without an apparent medical (somatic) reason, while the "secondary" form is associated with one or more of the fol-

lowing reasons: neurological and/or mental disorders, personality traits, sleep disorders, the use of certain groups of drugs (side effects from them).

A distinction should be made between bruxism that occurs during wakefulness and the nocturnal form. Depending on the etiology, bruxism can also be further divided into occlusion-dependent, stress-induced (psych dependent), "mixed" type (mixed type), depending on both the occlusion and the state of the patient's psychological well-being [4]. It is interesting to note that patients with bruxism differ from "healthy" people by the presence of sensitivity to stress, a tendency to somatic and cognitive hyperexcitation, while daytime clenching of teeth (daytime bruxism) is largely explained by the experienced (accumulated) stress, while bruxism in sleep is considered a movement disorder in sleep of central origin.

The etiology of bruxism is multifactorial and, as reported, includes such factors as emotional stress, parasomnia (sleeping, speaking, sleepy moaning), traumatic brain injury, neurological disorders, morphological factors (malocclusion, TMJ dysfunction), changes in the dopaminergic system, etc.

Recently, a hypothesis about the cascade was put forward [3]. Unconscious oral-motor forms of activity in a patient can begin with psychosocial factors associated with stress (for example, separation anxiety of an early age), and then can act through central factors associated with the transmission of neurons from the nervous system to the masticatory muscles. They can transfer the load on the teeth through peripheral factors, and this, ultimately, can lead to malocclusion.

There is a connection of bruxism with certain psychological factors that act as supporting, provoking and predisposing factors of bruxism [3]:

- **Personal characteristics of patients**. Bruxism can be considered as a symptom of an unexpressed emotion, a form of alexithymia manifestation and a failure in the attachment system. For example, it is often considered as a symptom of suppressed (censored) aggression, widely recognized as the main cause of many psychosomatic problems. The way patients with bruxism react to frustrating situations is to internalize aggressive reactions and then the appearance of irritability, short temper. They have high scores of indirect aggression, irritability, suspicion and a high index of aggression and hostility [5]. It is shown that compulsive, aggressive and controlling people are more likely to develop bruxism. High alexithymia (on the TAS-20 scale) indicates that these patients do not like to turn to their mental reality and live mechanically (operatively), constantly in concentration (there are muscle-tonic manifestations, specific poses, oral behavior and facial tone), like robots. For example, a patient with bruxism can work intensively, not feel tired for a week and then lie in bed for two days, irritability and tearfulness are present. They lack creativity and they view their ability to empathize with others as a weakness. High personal anxiety and neuroticism. Hysteria (according to MMPI) is observed in patients with bruxism and temporomandibular disorders. Hysteria manifests itself in vanity, egocentricity, manifestation of superficial emotionality, theatricalization (dramatization) of behavior, sexual provocation, but frigidity, dependence, demanding and manipulation in interpersonal relationships. Hostility associated with hysteria seems to be an important mechanism for the formation of symptoms [1].

- **Personal profile (MMPI):** The triad "hypochondria, depression, hysteria" [3].

- **Early maladaptive cognitive behavioral patterns** (according to YSQ): "Suppression of emotions", "alienation", "distrust", "privilege" and "strict standards".

- **Comorbidity:** Patients with bruxism are predisposed to depression, an anxiety spectrum of disorders, are more vulnerable to psychosomatic disorders (for example, IBS, burning mouth syndrome, shoulder-scapular syndrome, skin manifestations) and

are less socialized (adaptation disorder), which often leads to flight, withdrawal. There are symptoms of feelings of loneliness and social isolation (according to the UCLA-LS scale). There is a connection between anxiety and bruxism that begins in childhood and persists into adulthood [2,3].

- **Coping styles of patients with bruxism:** Restraint of coping prevails, waiting for the right moment for action and refraining from too hasty, impulsive actions (on the COPE-I scale). They tend to prefer temporary methods of reducing stress instead of focusing on the cause [4].

- **Psychosocial factors:** For example, the acceleration of the rhythm of life, the perceived pressure of time, the "nowhere to go" mode, the competition "you have to strain yourself more", moving to another city, repairs, parting [4].

Based on the data presented by us, bruxism can be considered as a protective reflex, a "valve" regulating the level of psychological well-being, acting as a physiological discharge of emotional tension. Chronic stress and the warning, controlling, avoiding reactions caused by it affect the functional disorders of the neuromuscular system and are the main etiological factors of bruxism. Increased reflex activity causes muscle tone, which can vary from a state of increased tension to muscle rigidity, often patients do not notice the presence of this tone. Various emotional experiences are increasingly leading to the development of muscle parafunction, including bruxism. Bruxism can have a "positive" effect on the mental functioning of the patient as the only, non-adaptive way for emotional discharge. For example, in a patient with bruxism with hysterical tendencies, the use of teeth (oral behavior) is a form for repressing anger, hatred, hostility and aggression.

Conclusion

In this regard, when treating bruxism, the following diagnostic psychological questions should be taken into account: are there any special emotions associated with bruxism in the patient? At what point in life did the symptoms occur in the patient? What is the personal and mental profile of the patient? Is bruxism in the patient an adaptive reaction? If so, is this a healthy or unhealthy adaptation? Having answered these questions, it should be understood that if bruxism has a significant emotional component in its etiology in a particular patient, then specialized protocols of cognitive behavioral therapy should be used in complex treatment.

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