

## AWAKE BRUXISM TREATED WITH PREGABALINE IN A PATIENT WITH GENERALIZED ANXIETY DISORDER

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### SUMMARY

**Background:** Bruxism is excessive teeth grinding or jaw clenching. Several symptoms are commonly associated with bruxism, including hypersensitive teeth, aching jaw muscles, headaches, tooth wear, and damage to dental restorations. There are two types of bruxism, awake bruxism and sleep bruxism. Awake bruxism is generally treated by dentists and maxilla-facial surgeons through several treatment modalities such as, counselling about triggers, relaxation, occlusal splints and botulinum toxin type A injections.

**Methods:** We will present the case of a 21-year-old woman presenting mood swings with a high level of anxiety and concentration difficulties since childhood. She also complained of awake bruxism. Intelligence was evaluated using The Wechsler Adult Intelligence Scale - Fourth Edition (WAIS-IV). Attention-deficit hyperactivity disorder (ADHD) was investigated through a neuropsychology test.

**Results:** Intelligence evaluation showed normal intellectual function. Neuropsychology test showed a profile corresponding to ADHD. Bupropion XR 300 mg was initiated for ADHD. Pregabalin was prescribed for general anxiety syndrome. The patient reported a complete disappearance of awake bruxism at a daily dose of 375 mg, with no occlusal appliances. Following the improvement of the anxiety symptoms, the attempt to reduce the dose twice leading to the recurrence of bruxism

**Conclusions:** A 21 years old female treated with 375 mg daily doses of pregabalin for generalized anxiety disorder experienced a significant reduction of daytime bruxism. More studies are needed to determine whether pregabalin has a long term effect against awake bruxism.

**Key words:** awake bruxism - pregabalin - ADHD - treatment

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### INTRODUCTION

In 2013, international consensus was obtained on a simple and pragmatic definition of bruxism as a repetitive masticatory muscle activity that is characterised by clenching or grinding of the teeth and/or by bracing or thrusting of the mandible. It has been recommended that the single definition for bruxism is to be “retired” in favour of 2 separate definitions (Lobbezoo et al. 2013):

- *Sleep bruxism* is a masticatory muscle activity during sleep that is characterised as rhythmic (phasic) or non-rhythmic (tonic) and is not a movement disorder or a sleep disorder in otherwise healthy individuals.
- *Awake bruxism* is a masticatory muscle activity during wakefulness that is characterized by repetitive or sustained tooth contact and/or by bracing or thrusting of the mandible and is not a movement disorder in otherwise healthy individuals.

Since increased anxiety levels and somatization symptoms have been reported in these patients, interventions such as counselling about triggers, habit modification, relaxation therapy, or biofeedback have been suggested to be appropriate (Lobbezoo et al. 2008). However, no RCTs exist to support these approaches.

Pregabalin is one of several first line agents for the treatment of generalized anxiety disorder. It appears to

have anxiolytic effects similar to benzodiazepines but has demonstrated superiority by producing more consistent therapeutic effects for psychosomatic anxiety symptoms (Owen 2007).

We will describe the case of a 21 year-old female treated with pregabalin 375 mg for a generalized anxiety disorder. Unexpectedly awake bruxism complaints were no longer reported. Reduction of the pregabalin dosage resulted in resumption of bruxism.

### METHODS

In the end of August 2017 a 21-year-old female patient was referred to our anxiety & depression inpatient unit for a 3-week evaluation of mood swings unsuccessfully treated for the previous month with low doses of Aripiprazole.

General diagnostic procedure components for mood swings in our unit include: Complementing the already given information with further data gathering, behaviour examination and various diagnostic tests.

Candidate diseases or conditions that can possibly cause mood swings such as bipolar disorder, attention deficit hyperactivity disorder (ADHD), and certain personality disorders are considered up to the point where one candidate condition remains as eligible.

## RESULTS

During hospitalisation, the presence of mood fluctuations punctuated by phases of irritability were observed. Her personal history shows a chaotic school journey dotted with numerous failures, without obtaining a high school diploma. The Wechsler Adult Intelligence Scale (WAIS IV) showed normal intelligence. Neuropsychological Assessment showed executive and attentional impairment compatible with a profile of attention deficit hyperactivity disorder (ADHD). With low doses of Methyphenidate (2x5 mg) the patient experienced side effects mainly tachycardia. Methyphenidate was discontinued and bupropion prescribed. With doses of 300 mg the mood swings significantly decreased. The patient was discharged with the diagnosis of adult attention deficit disorder with residual irritability, restlessness, jaw muscle tension and problems with sleep and anxiety symptoms to be treated in outpatient consultation. After two-months, outpatient follow up confirmed mood stability with 300 mg of buspirone. Miaserin 10 mg was occasionally used as sleep facilitator. Jaw muscle tension and tooth wear was evaluated by her dentist who determined that her condition fulfilled the criteria of awake bruxism and suggested the use of occlusal splints. Anxiety symptoms persisted although restlessness, fatigue and sleep disorders, irritability and concentration problems had significantly improved. Pregabalin was prescribed first in December 2017 reaching the dosage of 150 mg in February 2018 with a reduction of anxiety and a subjective impression of reduced jaw muscle tension. Both further decreased when the pregabalin dosage was further increased to 375 mg at which muscle jaw tension disappeared most of the day.

On two occasions the dosage of pregabalin was reduced between January and December 2018. Due to reduced anxiety and uncomfortable sleepiness at work, the dosage of pregabalin was reduced to 150 mg, resulting in the resumption of awake bruxism complaints. When the dosage was increased to 375 mg, awake bruxism complaints disappeared. After 3 months, another attempt was made to reduce the dosage, this time to 225 mg. With the reoccurrence of uncomfortable jaw muscle tension, the patient asked to return to 375 mg with a subsequent reduction of bruxism symptoms.

## DISCUSSION

Prevalence rate of awake bruxism and sleep bruxism is about 20 and 8–16% respectively in adults (Glaros 1981) and adolescents (Tecco et al. 2011). Awake bruxism is found more frequently in females and has been associated with personality, depression, anxiety, life stress caused by familial responsibility or work pressure (Shetty et al. 2010). Cognitive behavioural therapy has been recommended (Van der meulen et al. 2000) as well as relaxation, tension-reduction and hypnosis. The interest of these techniques to reduce

awake bruxism remains unclear. Patients with remitted bipolar disorders may have less bruxism when treated with combined mood stabilizers and atypical antipsychotics (Oflezer 2020). Other psychotropic medications have been tested to treat bruxism with little, if any, evidence for effectiveness.

Pregabalin, is a gabapentinoid. Its use has been approved to treat epilepsy, neuropathic pain, fibromyalgia, restless leg syndrome, and generalized anxiety disorder (Slee et al. 2019). The World Federation of Biological Psychiatry recommends pregabalin as one of several first line agents for the treatment of generalised anxiety disorder (Wensel 2012), but pregabalin has demonstrated superiority by producing more consistent therapeutic effects for psychosomatic anxiety symptoms (Badenlow 2007).

In the case of our patient, temporality and reversibility suggest a causal relationship between the use of pregabalin and the improvement of diurnal bruxism. Not only the improvement effect occurred after the treatment, but on two occasions when the dosage was reduced, then the effect also disappeared.

## CONCLUSION

A 21 years old female treated with 375 mg daily doses of pregabalin for generalized anxiety disorder, experienced a significant reduction of daytime bruxism without occlusal appliance or any other treatment. The unexpected improvement of bruxism was reversible upon pregabalin dosage reduction suggesting causality. To our knowledge, there is no other case in the literature of successful treatment of diurnal bruxism with pregabalin. More studies are needed to determine whether pregabalin is effective against bruxism.

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**Conflict of interest:** None to declare.

### **Contribution of individual authors:**

Juan M. Tecco came up with the idea of the manuscript, collected the clinical data from the patient and files, the literature searches and writing was a combined effort. As a psychiatrist, Juan M. Tecco contributed with all aspects related to mental health.

Simona Tecco, as a dentist, contributed with everything related to dentistry.

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