Familial aggregation of anxiety associated with bruxism

David Gorski

University of Pittsburgh School of Dental Medicine, Pittsburgh PA, USA

Abstract

Background: This paper reports the co-occurrence of heritable anxiety-related disorders and awake bruxism in a family and discusses the heritability of anxiety and implications of awake bruxism as comorbidity to anxiety disorders.

Subjects: Ten out of 14 members of an extended family reported having a professionally diagnosed anxiety-related disorder. All individuals with anxiety disorders also showed intraoral signs of wear from bruxism and reported being aware of grinding their teeth while awake. Additionally, three out of the four family members without an anxiety-related disorder did not report grinding their teeth and showed no occlusal wear from bruxism. All of the individuals that were examined were educated about the short-term and long-term complications associated with bruxism, but all of them elected not to have treatment performed.

Practical Implications: Anxiety disorders are highly related to suicidal behaviors, particularly in children and adolescents. Additionally, awake bruxism can often serve as an indicator of anxiety or stress. By recognizing bruxism as a possible manifestation of psychological distress, the dental practitioner may be able to direct patients to life-saving services like psychologists and crisis hotlines when appropriate.

Introduction

Bruxism is defined as "a repetitive jaw-muscle activity characterized by clenching or grinding of the teeth and/or by bracing or thrusting of the mandible" that can occur while asleep (sleep bruxism) or while awake (awake bruxism) [1]. Awake bruxism is reported in 20% of the adult population in the US [2], but researchers have only recently linked its occurrence to anxiety disorders [3].

The heritability estimates for anxiety disorders range from 20% to 65% [4]. From family and twin studies, the heritability of Generalized Anxiety Disorder (GAD) has been measured at 32%, indicating significant heritability for this anxiety-based condition [5].

Awake bruxism and anxiety are often only considered in their respective fields of dentistry and psychology. This report describes the co-occurrence of anxiety disorders and their manifestation as awake bruxism in family, and it discusses the clinical implications of these findings.

Subjects

A 28 year-old male was complaining of "jaw pain" and "headaches" that had been worsening in the past two years. The patient had a relatively unremarkable medical history. Other than minor seasonal allergies for which he was taking no medications, his only notable conditions were Generalized Anxiety Disorder and Major Depressive Disorder. For these conditions, he was...
had provided some
relief from the head-
aches and jaw pain.

Figures 3 and 4 show the phenotypi-
cal distribution in
the family after oral
examinations and
medical history in-
terviewing of the
proband’s family.

Out of 13 individuals examined, ten
had professional diagnoses of anxiety-
related conditions and also
showed intraoral signs of bruxism
(Figures 5, 6, and 7). Additionally,
out of the four family members
who did not have an anxiety-related
condition, only indi-
vidual II.1 showed any in-
traoral signs of
bruxism or admitted to “grinding or
clenching their
teeth” (Figure 8).

None of the family members that
were inspected wished to have
treatment performed.
Individuals III.1 and
II.4 already had occlu-
sal splints that they
wore at night. They
both rated their
symptom relief from
their occlusal splints
as “moderate.” Indi-
vidual II.4 said that
his occlusal splint was
“uncomfortable and
awkward” to wear but did not wish
to have it remade. All members of
the family, regardless of whether
they presented with signs of brux-
ism, were educated on bruxism and
the short-term and long-term com-
lications associated with the con-
dition.

Discussion

Recent studies on twins have found
a significant degree of heritability
for anxiety disorders. But, these
studies have been unable to pin-
point any single genes that are re-
 sponsible for the occurrence of anxi-
ety [6]. Instead, it has been sug-
gested that anxiety has a highly
multifactorial pattern of inher-
itance, with the environment play-
ing a role and a large number of
genens contributing a small individu-
el effect [7]. That being said, based
on the pedigrees for anxiety (Figure
3) and associated bruxism (Figure
4), it would appear that at least
some of the genes that contribute to
anxiety in the proband’s family are
inherited in an autosomal domi-
notial fashion, with all three noted genera
tions affected by the condition.
Awake bruxism has been noted to have a number of varied associations—smoking, caffeine intake, and alcohol consumption [8]. However, in a study of 86 children by Monaco et al, 72% percent of children that bruxed showed significant anxiety scores, while only 12% of non-bruxers had similar psychological findings [9]. This would indicate that the act of bruxing is highly correlated with anxiety disorders. The results from this study agree with the findings from the family reported here. Indeed, in this family, bruxism and multifactorially inherited anxiety disorders appear to be intertwined. Each person with a diagnosed anxiety-related disorder also had signs of occlusal wear associated with bruxism and were aware that they bruxed while awake. Similarly, three out of four of the individuals (I.1, III.4, and III.6) who did not have an anxiety disorder also did not brux. Only one family member (individual II.1) showed signs of occlusal trauma from bruxism, but was not diagnosed with anxiety. This family member attributed the wear patterns to “occasional grinding” due to stress in the workplace.

This report highlights the importance for dental health professionals to understand the significance of dental manifestations due to other conditions. Many dental professionals are aware of the evidence linking periodontal disease to heart disease [10] and diabetes [11]. As a result, many dentists are able to act as “early warning indicators” and counsel their patients about possible systemic comorbidities. Similarly, the dental field should become aware of bruxism as a possible predictor of heritable anxiety-related disorders. Anxiety disorders are highly related to suicidal behaviors, particularly in children and adolescents [12]. If dentists are able to recognize the oral manifestations of anxiety and stress in their patients, they may be able to counsel these patients and ultimately direct them to life-saving services such as therapists and crisis centers.
References


