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Psychiatric disorders in burning mouth syndrome

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ABSTRACT

Background: Prevalence of psychiatric disorders in burning mouth syndrome (BMS) is high, but their role in the pathogenesis of BMS remains unclear.
Objective: The authors aimed to assess the frequency of psychiatric disorders and the severity of psychopathology in BMS.
Methods: Thirty BMS patients and thirty-one controls underwent a psychiatric evaluation which included a structured interview (MINI-Plus) and five psychometric scales. A Visual Analogue Scale (VAS) was used to measure the intensity of burning sensation.
Results: Patients with BMS showed a higher frequency of current major depressive disorder, past major depressive disorder, generalized anxiety disorder, hypochondria and cancerophobia ($p<0.05$). In BMS patients, generalized anxiety disorder was significantly associated with current major depression and social phobia ($p<0.05$). As expected, cancerophobia was significantly associated with hypochondria ($p<0.05$). Patients with BMS had higher scores in Hamilton Rating Scale for Depression (HRSD), Beck Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI) and Dutch Fatigue Scale (DUFS) ($p<0.05$).
Conclusion: BMS patients may have a particular psychological and/or psychiatric profile. Psychometric scales might be useful in screening psychiatric disorders, as well as for assessment of treatment outcomes. In the presence of clinical relevant psychiatric symptoms, patients must be treated appropriately.

Introduction

Burning Mouth Syndrome (BMS) is a chronic disorder whose etiopathogenesis is still unclear [1], although there is evidence that a dysfunction in central and/or peripheral nervous system plays an important causative role [2,3]. BMS is characterized by a burning sensation or other dysesthesias, but the clinical appearance of the oral mucosa is within normal limits [2,4]. Multiple factors have been associated with these changes, and a variety of symptoms could be simultaneously present, such as xerostomia, dysgeusia, and psychological symptoms [2,4]. Multiple sites in the oral cavity may be affected, with the tongue being the most commonly affected site [2,4,5]. BMS most commonly affects middle-aged women after menopause. The prevalence is estimated to be 0.7–4.6% of the general population [2,4,5].

It has been hypothesized that psychological factors could explain the burning mouth symptoms [6–13]. Several studies have reported high frequency of psychiatric morbidity in BMS [6–8]. Depression seems to be the most prevalent psychiatric disorder in patients with BMS, but symptoms of anxiety, cancerophobia and hypochondriasis are also common [6–8,11]. Although BMS patients are subjected to elevated psychological stress, the onset of their symptoms is not necessarily associated with stressful life events [9].

Revealing the underlying etiology and pathogenesis of BMS is of special interest to clinicians and researchers, so that effective forms of treatment can be developed [11–13]. Indeed, in agreement with studies suggesting the presence of a peripheral or a central neuropathic mechanism in the pathogenesis of BMS [3,14], some authors have proposed the use of systemic or topic substances like capsaicin, alpha-lipoic acid and lisozime–lactoperoxidase [15]. However, double-blind, randomized and placebo-controlled trials have generated conflicting results until now [16,17]. Conversely, taken into account that BMS and psychiatric illness are strongly associated, clinical benefits of group and individual psychotherapy [12,18] as well as psychopharmacological intervention [19] have been demonstrated in patients with BMS.

The main objective of this study was to compare the frequency of psychiatric disorders and the severity of psychopathology in BMS and control individuals. Participants were also examined for fatigue and daytime sleepiness, symptoms which have not been systematically

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assessed in BMS yet. Our main hypothesis was that these two groups differ in their profile of psychiatric symptoms and disorders. We also investigated whether psychopathology influences (or is influenced by) the severity of burning sensation. The results of this research might improve our understanding of the role of psychological factors in BMS.

Methods

Study design

This is a cross-sectional study that evaluated patients attended at the Oral Pathology clinic of Universidade Federal Minas Gerais for the treatment of BMS. This study was approved by the local Human Research Ethics Committee. All participants provided signed informed consent forms.

Inclusion and exclusion criteria

To be included in the study, patients must have a diagnosis of BMS in accordance with criteria from the International Headache Classification [1]. Patients were excluded if they had local or systemic problems, including use of certain drugs (angiotensin-converting enzyme inhibitors, tricyclic antidepressants and anticholinergics [20,21]), that could better explain the burning sensation or mouth pain. Furthermore, salivary flow was measured in order to evaluate whether reduction in this parameter could be due to other medications in use. Of note, salivary flow was within normal standards in all subjects of this research. All patients underwent diagnostic blood tests (e.g., complete blood cell count, as well as levels of glucose, iron, transferrin, vitamin B12, folic acid, antinuclear antibodies (ANA), Anti-SSA/RO and Anti-SSB/LA) [2,7,20,21]. The clinical oral examinations were performed by two independent examiners to confirm the absence of oral lesions.

The control group consisted of healthy patients seen in the Dental Clinic of Universidade Federal de Minas Gerais for periodic assessment of their dental condition. They were not receiving any analgesic treatment at the time of study, and the patients in the group had no history of chronic pain syndrome or concomitant locoregional disease that caused oro-facial pain. Participants in the control group were selected for similar age and gender, on the basis of the age and gender characteristics of the subjects with BMS. All participants in the study are from the metropolitan area of Belo Horizonte in Minas Gerais, Brazil.

Assessment

The following sociodemographic information and clinical characteristics were recorded: age, gender, work, presence of systemic diseases, use of medications (particularly, psychotropic and antihypertensive drugs), smoking habit and duration of symptoms. Data was obtained via oral interviews with individuals with BMS and with control subjects between August 2009 and December 2010.

A Visual Analogue Scale (VAS) was used to measure the intensity of symptoms in patients with BMS. The VAS consists of a 10-cm line with two closed ends. One end indicates 'without burning' while the other end indicates 'unbearable burning sensation,' representing the opposite extreme. Patients were asked to score a single point according to the best matched burning intensity [22].

All patients also underwent a psychiatric evaluation which included the MINI-Plus [23], an internationally validated structured clinical interview for psychiatric diagnosis according to DSM-IV.

Both BMS patients and controls were assessed whether they had cancerophobia (or carcinophobia). Although there are no diagnostic criteria for cancerophobia, this hypochondriac symptom has been occasionally assessed in BMS patients and it has been associated with a worse prognosis [5]. An inclusive definition of cancerophobia was used. Thus, our definition included patients who feared having cancer, and in whom malignancy is not detected, but that could either accept reassurance and regain normal status [24] or not [25]. Cancerophobia was investigated by simply asking patients what they thought (or still think) was the cause of their burning, and if their worry was relieved or not after being reassured. If patients did not accept reassurance, a hypochondriac disorder diagnosis was considered.

Participants also answered psychometric scales, including the Hamilton Rating Scale for Depression (HRSD) [26], the Beck Depression Inventory (BDI) [27], State-Trait Anxiety Inventory (STAI) [28], Epworth sleepiness scale [29], Dutch Fatigue Scale (DUFS) [30] and Dutch Exertion Fatigue Scale (DEFS) [30]. Psychiatric assessment was conducted by the two trained psychiatrists blinded to the clinical status of the subjects.

Statistical analysis

A database was assembled using Statistical Package for Social Sciences (SPSS) version 18.0. The descriptive statistical analysis was based on calculations of proportions, measures of central tendency and variability for the sociodemographic and clinical aspects as well as psychometric variables. To evaluate the normality of the variables, we used the Kolmogorov–Smirnov test. The chi-square test, Fisher exact test, *T*-test and Mann–Whitney *U*-Test were used when appropriate, with the statistical significance level set at 0.05. We calculated the Spearman's correlation coefficients for the variables of psychometric scales in the group of patients with BMS.

Results

The sample consisted of 30 individuals with BMS, 29 women (97.7%) and 1 man (3.3%). The control group consisted of 30 women (97.8%) and 1 man (3.2%). Participants of both groups did not differ in gender distribution or age (Table 1). The mean (SD) duration of BMS symptoms was 37.83 (40.15) months. The mean (SD) score of the VAS, an instrument used to assess the intensity of burning symptom, was 9.13 (1.45). Thus, most patients considered their burning sensation to be unbearable.

According to the MINI-Plus, patients with BMS showed a higher frequency of current major depressive disorder ($p=0.004$), past major depressive disorder ($p=0.006$), generalized anxiety disorder ($p=0.012$) and hypochondria ($p=0.05$) than control subjects (Table 2). The frequency of cancerophobia in BMS patients was also significantly increased ($p<0.001$). The frequency of any current psychiatric disorder in BMS patients was higher than in controls ($p=0.01$). Consequently, the group of patients with BMS used more psychotropic medications ($p=0.03$). Benzodiazepines were responsible for this difference between groups when comparing the use of psychotropic drugs (Table 1).

In order to analyze whether psychiatric disorders influenced BMS onset (or vice-versa), age of onset of major depressive episodes (the psychiatric disorder which was most strongly associated with BMS) was evaluated and disease duration was calculated. Some patients reported a long-life history of depressive episodes and/or countless episodes. Duration of major depressive disorder ranged between two months and 51 years (mean of 19.2 years; SD of 16.1). Hence, psychiatric disorders

Table 1
Demographic and clinical features of patients with BMS and controls.

	Controls (n = 31)	BMS (n = 30)	P value
Age, mean (SD), years	63.8 (11.8)	62.3 (12.5)	0.63*
Gender (M/F)	1/30	1/29	1.00**
VAS, mean (SD)		9.1 (1.4)	
Duration symptoms, mean (SD), months		37.8 (40.1)	
Work outside home (%)	11 (35.5)	9 (30.0)	0.64***
Other medical conditions (%)	26 (83.9)	29 (96.7)	0.19**
Medication use (%)	25 (80.6)	27 (90.0)	0.47**
Psychotropic medications (%)	5 (16.1)	12 (40.0)	0.03***
Benzodiazepines (%)	4 (12.9)	10 (33.3)	0.05***
SSRIs (%)	1 (3.2)	2 (6.7)	0.61**
Antihypertensive medications (%)	21 (67.7)	14 (46.7)	0.10***
Smoking habit (%)	2 (6.5)	3 (10.0)	0.67**

Abbreviation: SD, standard deviation; SSRIs, selective serotonin reuptake inhibitors (i.e.: fluoxetine).
* *T*-test
** Fisher exact test.
*** Chi-square test.