



Original article

Burning mouth syndrome and associated factors: A case–control retrospective study[☆]



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ABSTRACT

Background and objective: Burning mouth syndrome (BMS) can be defined as burning pain or dysesthesia on the tongue and/or other sites of the oral mucosa without a causative identifiable lesion. The discomfort is usually of daily recurrence, with a higher incidence among people aged 50–60 years, affecting mostly the female sex and diminishing their quality of life. The aim of this study was to evaluate the association between several pathogenic factors and burning mouth syndrome.

Patients and methods: 736 medical records of patients diagnosed of burning mouth syndrome and 132 medical records for the control group were studied retrospectively. The study time span was from January 1990 to December 2014. The protocol included: sex, age, type of oral discomfort and location, among other factors.

Results: Analysis of the association between pathogenic factors and BMS diagnosis revealed that only 3 factors showed a statistically significant association: triggers ($p = .003$), parafunctional habits ($p = .006$), and oral hygiene ($p = .012$). There were neither statistically significant differences in BMS incidence between sex groups ($p = .408$) nor association of BMS with the pathogenic factors of substance abuse ($p = .915$), systemic pathology ($p = .685$), and dietary habits ($p = .904$).

Conclusions: Parafunctional habits like bruxism and abnormal movements of tongue and lips can explain the BMS main symptomatology. Psychological aspects and systemic factors should be always considered. As a multifactorial disorder, the treatment of BMS should be executed in a holistic way.

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Síndrome de boca ardiente y factores asociados: estudio retrospectivo de casos y controles

RESUMEN

Antecedentes y objetivo: El síndrome de boca ardiente (SBA) puede definirse como ardor o disestesia en la lengua y/u otras áreas de la mucosa bucal, en ausencia de lesiones que puedan justificarlo. Su incidencia es mayor en pacientes de sexo femenino, de edades comprendidas entre 50 y 60 años. Estas molestias suelen recurrir diariamente, provocando un deterioro de la calidad de vida. El objetivo del estudio fue evaluar la asociación entre diversos factores patogénicos y el SBA.

Pacientes y métodos: Se estudiaron de forma retrospectiva 736 historias clínicas de pacientes diagnosticados de SBA y 132 historias clínicas de pacientes control. El período de estudio se extendió desde enero de 1990 a diciembre de 2014. El protocolo incluyó: sexo, edad, tipo de molestia bucal y localización, entre otras variables.

Palabras clave:

Ansiedad

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Resultados: El análisis de la asociación entre los factores patogénicos y el diagnóstico de SBA mostró significación estadística en solo 3 de ellos: factores desencadenantes ($p=0,003$), hábitos parafuncionales ($p=0,006$) e higiene oral ($p=0,012$). No se encontraron diferencias significativas en la incidencia del SBA por sexos ($p=0,408$), ni asociación entre el SBA y los factores de abuso de sustancias ($p=0,915$), patología sistémica ($p=0,685$) y hábitos alimentarios ($p=0,904$).

Conclusiones: Los hábitos parafuncionales como el bruxismo y los movimientos anormales de la lengua y labios pueden explicar la sintomatología del SBA. Hay que tener siempre en cuenta los aspectos psicológicos y los factores sistémicos. Como alteración de carácter multifactorial que es, el tratamiento del SBA debe enfocarse de manera holística.

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Introduction

Burning mouth syndrome (BMS) is mostly referred to as a “burning or stinging sensation on the oral mucosa”, “oral dysesthesia” or “burning pain on the tongue”. Without a causative identifiable lesion, the discomfort is usually of daily recurrence, although periods of no pain during the day are reported. It occurs mostly in females, affecting their quality of life.^{1–3}

The International Association for the Study of Pain (IASP) defines BMS as burning pain or dysesthesia on the tongue and/or other sites of the oral mucosa, without any clinical or laboratory data.⁴ This syndrome has been classified in primary and secondary. In the primary form (essential or idiopathic), the burning sensation is not accompanied by clinical or analytical alterations; in the secondary form lesions are present, with laboratory abnormalities, systemic diseases, psychological alterations, or consumption of specific medicines.⁵ Lamey and Lewis (1989)⁶ proposed three clinical types of BMS based on the diurnal variation of the symptoms. The discomfort tends to be chronic, but spontaneous periods of remission are also common.² The typical patient with BMS is a menopausal woman with systemic diseases, burning mouth sensation on the tongue, taste alterations and dry mouth, without clinical lesion.⁷

Prevalence ranges between 0.7% and 5.1% in general population.⁸ Incidence is higher among people aged 50–60 years, with a ratio women:men between 3:1 and 7:1.^{7,8} This difference has been related to either biological, psychological, and social factors.^{9–12} Our study was made on a population of Catalonia, where no epidemiological data of BMS were collected before.

The psychological component in BMS is supported by studies that report higher levels of depression and anxiety in patients with BMS compared to control groups.¹² In a study performed on 30 patients with BMS a significantly association was found between taste alteration (metallic or acidic taste) and depression.¹³ Other studies showed that depression and anxiety were present in 50% of cases with BMS¹⁴ and 67.1% of patients with this syndrome were found to suffer from poor sleep quality.¹⁰ An association of openness personality trait with stress-related salivary biomarkers has also been related to BMS.¹⁵ In recent years, new evidence seems to link BMS with peripheral and neuropathic disturbances.^{11,16} Menopausal hormone reduction has also been linked to BMS.^{1,2,9} Among the reported systemic factors associated with this syndrome are: diabetes mellitus,¹⁷ gastrointestinal reflux,¹⁸ nutritional deficiencies,¹⁷ hormonal changes,⁹ and some adverse effects of drugs.¹⁷ Local factors and clinical conditions found in these patients include geographic tongue, candidiasis, parafunctional habits, and hyposalivation,¹⁷ as well as changes in the saliva composition, contact allergies¹⁹ and dental treatments (prosthesis, implants, teeth extractions).²⁰

Management of BMS should be focused against the etiopathogenic factors, based on preventing the causes of oral irritation. However, in some patients etiological factors are not easy

to identify, in this case BMS is considered to be idiopathic.^{1,11,16} Several patients report improvement with cold beverages, soft food and/or recreational activities.³ The use of pharmacological treatment, particularly topic clonazepam can also help to ameliorate the symptoms. Psychological support and reassurance do usually help.^{12,21}

Differential diagnosis of BMS includes: candidiasis, oral lichen planus, geographic tongue, contact allergic stomatitis, and xerostomia. Systemic diseases should also be ruled out, such as Sjögren syndrome and other forms of dry mouth,²² vitamin and mineral deficiencies,²³ uncontrolled diabetes, and hematological diseases.²⁴ If any of these are the causal factors, their treatment should resolve the burning sensation. For idiopathic cases, several treatments have been proposed to improve BMS, with variable results.^{1,14,25}

Parafunctional habits like bruxism and abnormal movements of tongue and lips seem to play a significant role in the pathogenesis of BMS.^{7,25–27} Since the etiology of BMS is multifactorial, the main objective of this study was to evaluate the association between several pathogenic factors and the semiology of BMS.

Patients and methods

736 medical records of patients diagnosed of BMS and 132 medical records for the control group were studied retrospectively. The study time span was from January 1990 to December 2014. The diagnosis was established by three experts in oral medicine, who reached to a consensus protocol including the variables: (1) *Reason for consultation*; (2) *Type of discomfort* (burning mouth and/or stinging, sour taste, sandy feeling, dysgeusia, dryness); (3) *Location* (tongue, lips, palate, gums); (4) *Pain intensity* (analog visual scale) ≤ 5 or >5 ; (5) *Triggers* (family death or illness, divorce or separation, stress associated with family or job problems and recent dental treatments); (6) *Parafunctional habits* (bruxism, abnormal movement of tongue and lips, tongue thrusting against teeth); (7) *Systemic pathology* (pathologies associated with medication treatment); (8) *Oral hygiene* (good, average or poor); (9) *Dietary habits* (good: balanced diet, good hydration considered as drinking >2 L of liquid per day; bad: high intake of sugar, carbohydrates and lipids, poor hydration); (10) *Substance abuse* (use of tobacco, marijuana and/or alcohol); (11) *Local factors* (maladjusted prosthesis, sharp teeth or fillings) (12); *Existing treatment for oral symptoms* (conservative: hydration, saliva substitutes, hygiene; balanced diet or medicine: clonazepam, antidepressants, sedatives); (13) *Definitive diagnosis* (BMS or other pathologies).

Ethical aspects

To maintain the patient confidentiality, recommendations of the Spanish Organic Law 15/1999 of December 13 on the Protection of Personal Data were followed. All participants were identified by a code only known by the researchers.

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