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ORIGINAL ARTICLE

Patients with burning mouth sensations. A clinical investigation of causative factors in a group of "compete denture wearers" Jordanian population

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KEYWORDS

Burning sensation;
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Abstract *Aim:* To find out the prevalence of "true" burning mouth syndrome and study the association between patients' spontaneous complaints of burning mouth and systemic conditions in a group of middle age and elderly "denture wearers" patients in Jordan.

Methods: A group of 129 patients (112 female and 17 male) of "complete denture wearers" subjects aged 40 years and over attended prosthetic clinic at King Hussein Medical Hospital complaining from oral burning, with no oral lesion possibly responsible for the burning sensations were selected. Assessment of oral and general status was done based on questioners, detailed history taking, medical records and extra and intraoral examination. The existed complete dentures retention, stability, jaw relationship and the free way space were evaluated. The current blood test and instrumental protocol for examination of patients with burning mouth complains were performed for each patient. Then those studied patients with burning mouth sensations including "true" burning mouth syndrome have been compared to the controls with regard to the presence of local problem, undermined local, systemic or psychological disease.

Results: The diagnosis of "true" burning mouth syndrome was established in (2.3%) of the studied population two females and one male. In most patients (58%) more than one site was affected. Significant positive associations were found between local factors (i.e., wearing complete dentures with unsatisfactory retention or jaw relationship, dry mouth or candidasis) and patients suffering from burning mouth sensation. The results also show that some systemic or psychological disorders

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were significantly more present among patients with burning mouth symptoms when compared to the control group ($p < 0.05$).

Conclusion: Spontaneous symptoms of burning mouth without mucosal signs should be considered as a manifestation of undermind pathology and/or distress, and the multi-factorial causes of burning mouth syndrome and sensation need to be referred to the suitable specialist for better treatment results.

1. Introduction

One of the most difficult problems in oral medicine is the patient who consistently complains of pain or burning sensations, but the dentist or physician can find no convincing physical explanation (Brightman, 1984). Such conditions can occur in several local, systemic diseases or psychiatric conditions that must be ruled out prior to making a diagnosis of burning mouth syndrome, since this term is used exclusively to refer to idiopathic forms and is included within different sensory disorders (Brufau-Redondo et al., 2008).

Burning mouth sensation is probably of multi-factorial origin and can be a symptom of another disease when local or systemic factors are found to be implicated; however the exact underlying etiology remains uncertain (Javali, 2013; Kohorst et al., 2014). Clinical studies showed that the burning sensation can affect the tongue, the palate, the denture bearing areas, the buccal mucosa and the throat. From a clinico-pathologic stand – point two forms of burning mouth syndrome (BMS) has discussed: "true" or primary BMS, the idiopathic form of the disorder, and secondary BMS, which results from local or systemic disorders that may respond to appropriately directed therapy (Scala et al., 2003). In most cases, patients suffering from burning mouth syndrome frequently continue their looking for proper treatment through a long series of oral and medical attendance to solve their problems and relieve the pain. Therefore, special attention must be given to local factors like dentures and any systemic and psychological problem. Undiagnosed diabetes mellitus, hematological deficiencies, decreased salivary gland flow, candidal infection, allergy and parafunctional habits might also play an important role in the undermined causes of the symptoms of spontaneous burning sensations and should be considered during considering the treatment protocol (Lamey and Lamb, 1988; Svensson and Kaaber, 1995; Silvestre and Serrano, 1997; Soares et al., 2005).

This study was conducted to find out the prevalence of "true" BMS between groups of patients with burning sensation and study the association between burning mouth sensation and undermined local, systemic diseases or psychiatric conditions since this can be primarily diagnosed by dentist and then referred to the specialist to receive the best and quickest possible treatment results.

2. Methods

A total 129 "denture wearers" patient aged 40 years and over who attended the prosthetic clinics at King Hussein Medical Military Hospital in Jordan complaining of oral unremitting burning, with no oral lesions possibly responsible for the burning, in 2014 were sampled for this study. All participants were edentulous and wearing upper and lower complete dentures aged for 6 months or more. The study was conducted following the guidelines of the ethical review committee of the Royal Medical services-King Hussein Hospital in Jordan and a consent form each participant was obtained.

After detailed medical history was taken from each participant, thorough clinical examination of the oral cavity was performed. Patients with any extra or intra oral localize traumatic or pathologic lesion suspected to induce patient' distress, pain or burning sensation was excluded from the study. The location of burning sensation and its relation to the existed denture retention, stability, jaw relationship and the free way space, denture base extension, tongue position as well as parafunctional habits such as clenching and tongue thrusting, was established. Smear for the detection of Candida Albicans was taken from each participant with a cotton stick. The smear was placed on the Saboraud's agar into an incubator at the temperature of 37 °C for 48 h and then according to the number of colonies diagnosis of candidiasis was made according to Budtz-Jörgensen (1974)). Salivary gland investigations-Stimulated parotid salivary gland flow rates were performed with a Carlsson-Crittenden cup, stimulation being with 1 ml of 10% citric acid. The volume of saliva produced in 1 min was then measured. A value below 0.5 ml/min was considered abnormal according to the studies of Femiano et al. (2008).

Patch testing was done to investigate allergy to the acrylic monomer. The current blood test and instrumental protocol for examination of patients with burning mouth complains were performed for each patient (Table 1) in addition to Free T3 and T4, Thyroid-stimulating hormone (TSH) was done to detect hypothyroidism. Patients were asked directly about

Table 1 Current blood and instrumental protocol for BMS patients.

Complete blood count (CBC)
Random level of blood glucose
Ferritin serum
Liver function for Alanine transaminase and aspartate transaminase
Level vitamin B12
Serum total IgE
Autoantibodies by using antinuclear antibody test
The gastrointestinal tract by using serum antibodies to helicobacter
Salivary flow rates by using Saxon's test
Scintigraphy for magor salivary glands
Free triiodothyronine (FT3) and free thyroxine (FT4)
Thyroid-stimulating hormone (TSH)
Estradiol levels for females