

Burning Mouth Syndrome, Relationships with Some Systemic Medications (A clinical study among an Iraqi sample)

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Abstract:

Despite the numbers of studies upon burning symptoms in patients with clinically healthy appearance of the oral mucosa, as well as burning mouth syndrome (BMS) itself, they both remain still challenging subjects.

The aim of this study was arranged to evaluate the effects of some systemic medication in the occurrence of BMS in relation to other etiological factors that may share in causing this disease in an Iraqi sample.

Out of eighty, fifty patients (28 female and 22 males) were selected as a study group, all of them suffered from BMS, clinical and laboratory examinations in addition to previous diagnosis for the patients on the referral form were depending on identifying the etiological causes for the BMS.

This study revealed that antihypertensive and antidepressant medications were more affecting among this studied Iraqi sample with BMS than other etiological factor.

Key words: *Burning mouth syndrome BMS, systemic medication, menopausal conditions, etiological factors.*

الخلاصة:

بالرغم من وجود عدد من الدراسات حول متلازمة حرقة الفم لمرضى يبدون سريريا اصحاء بالنسبة لانسجة الفم المخاطية إلا إن متلازمة حرقة الفم نفسها هي نفسها عملية متشابهة. ان الهدف من الدراسة هو لمعرفة تأثيرات بعض الادوية المستخدمة للأمراض الجهازية في حدوث متلازمة حرقة الفم نسبة إلى بقية العوامل المؤثرة التي تشارك في تكوين هذا المرض من خلال 80 مريض ,خمسون مريضا , 28 ذكر مريض و 22 انثى, تم اختيارهم كنموذج فحصي دراسي حيث ان جميع المرضى مصابون بمتلازمة حرقة الفم. ان الفحوصات السريرية المختبرية اضافة الى التشخيصات السابقة للمرضى الموجودة على بطاقة المريض او التقارير الطبية قد تم اعتمادها في استخلاص اسباب هذه المتلازمة. أظهرت هذه الدراسة أن الادوية المستخدمة في امراض ضغط الدم وأمراض الاكتئاب النفسي كانت الاكثر تأثيراً في حدوث هذه المتلازمة من خلال فحص هذا النموذج لمرضى عراقيين مقارنة بالاسباب الاخرى المشاركة في تكوين هذا المرض.

Introduction:

Burning mouth syndrome (BMS) may be described as a burning sensation that is often qualitatively compared to a toothache. Burning symptoms might occur when oral mucosa has clinically healthy appearance^[1].

BMS is a chronic pain without any visible alteration of the oral tissues^[2]. It is very important for clinicians to be able to distinguish BMS and other diseases associated with this syndrome, so BMS is

considered to be a pain or burning sensation affecting clinically normal oral mucosal tissues for which local and systemic causes were excluded. The term syndrome includes, feeling of dryness, altered taste and the sensation affects the most oral tissues but the tongue is the most sites affected^[3].

Various attempts to classify BMS based on etiology and symptoms had been made. In a classification by etiology or cause, idiopathic BMS is considered "primary or true BMS", whereas "secondary BMS" has an

identifiable cause such as health disorders related to BMS^[4].

Burning mouth syndrome usually begins with no known triggering factors, but some studies suggest that certain factors may increase the risk of developing BMS, these risk factors may include, being so called "super taster" or some people with a high density of small tongue bumps called papillae which contain taste buds, also upper respiratory tract infection, previous dental procedures, medications and stress considered to be a risk factor when the cause of BMS is not known, the condition is called primary or idiopathic BMS, while secondary BMS is caused by an underlying medical condition, such as dry mouth (xerostomia), oral candidiasis, geographic tongue, anxiety and depression, other causes may play a role in BMS such as vitamins deficiencies, prosthodontic appliance, damage to the nerve that control taste and pain in the tongue, reflex of stomach acids, gastrointestinal infection, hormonal disturbances, some habitual habits such as teeth grinding, lip sucking and some medications for some systemic diseases such as diabetes, hypertension and depression^[5].

This clinical study was arranged to evaluate the effects of hypertensive medications (angiotensine inhibitor drugs) and antidepressant medication (anxiolytic drugs) in BMS occurrence during clinical study through an Iraqi sample of patients in Baghdad.

Materials and Methods:

Patients:

Out of eighty patients, fifty patients were selected as a study group with twenty two males and twenty eight female patients, the ages for both male and female patients ranged between 30-60 years, all of them

suffered from burning mouth syndrome (BMS). This study lasted up to eight months (from January to September 2013).

The studied patients were collected from Al-Emam Ali general Hospital, dental center in Al-Fallah Street (Al-Sadder city), Al-Sadder general hospital and several special dental clinics in different areas of Baghdad. All patients in this study group developed BMS according to medical or dental reports from medical or dental centers and private special clinics.

Method:

Primarily all included patient were examined clinically through the current study by specialist dentist to detect any oral burning sensation in order to prove the previous dental reports or referral forma from the mentioned dental and medical centers and hospitals, a new medical and dental history was taken from every participant in this study.

- 1- Patients with antihypertensive medications were asked about the drugs they taking.
- 2- Patients under antidepressant medications were already been diagnosed by psychiatrists and they were still under these drugs and observation. Patients under anti-hypertensive and antidepressant medications visited their physicians in limited appointment for check up.
- 3- Fasting blood sugar test was done for patients whom were previously diagnosed as diabetic patients by specialist physicians of endocrine diseases to prove the previous diagnosis by measuring the level of glucose in the blood.
- 4- Female patients suffered from BMS and aged 45years or more were examined clinically to exclude any etiological local or systemic factors.
- 5- Patients with dental appliances wearing and developed BMS also

patients with fissured and infected tongue and oral mucous tissues inflammation, whom were previously diagnosed by specialist dentist in oral medicine in private dental clinic, were re-examined to prove the diagnosis by checking up the denture fitness and function in addition to denture design and adjustment .

- 6- Simple scribing test to differentiate^[5]. was done for patients whom were diagnosed as oral leukoplakia to differentiate oral candidiasis from others white oral lesions, that candidiasis can be easily scribed off leaving ulcerative painful surface area, then the *candida albicans* species can be identified by biochemical test, also culturing to the lesion in agar media for 48 hrs at 37°C can prove the presence of candida^[6].

The parameters and assessments which investigated included the following:

- A-Complete blood count to exclude anaemia.
- B- Assessment Iron deficiency during complete blood picture
- C- Measurement of salivary flow (simple spitting method) to all participants in this study.
- D- To estimate the level of thyroxin in the blood, Thyroid Stimulating hormone Test (TSH) was done for every patient.

All the patients with systemic diseases and medications were provided either with medical report or referral form from medical centers or

hospitals, in addition to that they were diagnosed later by specialist dentist that they were developed oral burning sensation and in the recent study they were re-examined by taking their medical history and medication that they used and to detect any sign and symptoms or feeling of oral burning sensation by the patients themselves.

Hormonal tests were done to some women whose ages were 45 years and more by their physicians, these tests were done to evaluate any hormonal changes during menopausal period when the ovaries begin to make less quantity of Estrogen after the 45 years age. All of those women developed oral burning sensation by feeling the sensation by themselves and the oral clinical re-examination was applied to exclude any identifiable etiology inside the mouth.

All of clinical examinations were repeated twice in order to be sure for different variables and the use of mean, standard deviation student *t* test and p-value between different variables in relative to different factors that related to BMS.

Results:

The studied patients were fifty, with twenty two male and twenty eight female patients, all of them suffered from BMS.

The patients with BMS were divided according to the etiological factors which were present in their medical reports as in table-1.

Table- 1: distribution of BMS patients according to etiological factors

Number of cases	Etiological factors	male	female	Total % out of 50	Male %	Female %
13 *	Antihypertensive drugs	8	5	26	16	10
11 **	Antidepressant drugs	5	6	22	10	12
9	Diabetic patients under medication	5	4	18	10	8
6	Menopausal factors	Zero	6	12	----	12
5	Complete and partial denture wearer	3	2	10	6	4
3	History of tongue disease	1	2	6	2	4
3	Oral candidiasis	zero	3	6	Zero	6

*Patients with antihypertensive drugs were significant in developing burning mouth syndrome by using *p*-value and chi square.

** Patients with antidepressant drugs also recorded significant value in developing this syndrome by using the same statistical method mentioned above.

Other values were non-significant.

The patients with antihypertensive drugs (8 males and 5 females) with duration ranged between 2-7 years for the drugs intake, their age were 50 years and over except one female her age was 35 years. The main site affected in the oral cavity for those patients were the tongue and palate. While patients under antidepressant drugs, they had received these drugs for more than 3 years ago, their ages ranged between 30-50 years, mostly the buccal mucosa of cheek and tongue were affected.

One of the findings in this study, there were 3 female patients with candidiasis, in different age groups, in addition to 6 female patients over 45 years age, the most common sites affected were lower gingiva, tongue and the floor of mouth, in addition to that, another etiological factor effect both male and female patients in different age groups and the tongue, floor of mouth and palate were also mostly affected.

So the patients under antihypertensive medication and patients under antidepressant medications recorded the first and second ranks in developing BMS, followed by diabetic patients under antidiabetic drugs, while other etiological factors recorded non significant rate in BMS ($p > 0.05$). Some cases reflected multifactorial causes share in BMS, but according to this study the antihypertensive and antidepressant drugs played a big role in the occurrence of BMS among the studied sample of an Iraqi patient.

Discussion:

BMS affect widely many groups of the Iraqi people but the studies about this disease are rare, so this study arranged to evaluate the effects of systemic medications in BMS occurrence because large groups of Iraqi people are affected with systemic disease and they were under medication intake. Fifty patients, male

and females, all of them suffered from BMS, their ages ranged between 30-65 years and the current study lasted for more than eight months, the patients were classified according to the etiological factors as reported in the related medical case sheets and clinical re-examination of the participants patients. This study revealed that the patients under antihypertensive drugs and antidepressant drugs recorded significant effects in BMS occurrence even many etiological factors share in causing this syndrome, also old ages and tongue were mostly involved by this syndrome. Although depression-itself causes BMS, its medication may also cause burning sensation either as a side effect of drug such as dry mouth (xerostomia) or by irregular intake of drugs that induce BMS occurrence.

BMS causes complications associated with pain, depression, anxiety, and psychological conditions^[7]. in the current study these complications also were present. BMS is associated with burning of the tongue, lip, and other mucosal surfaces and post menopausal symptoms were highly recorded among BMS female patients^[8]. this was agreed with the findings of the current study, but menopausal conditions may be associated or hidden with other etiology factors in causing BMS and the current study revealed that the tongue was mostly affected with this syndrome and the sensation was exaggerated because of presence of the taste buds.

According to Rojo et al study^[9], which appeared the hormonal changes associated with menopause, psychological factors including anxiety, depression, stress, and personality disorder share in BMS formation, this study was in agreement with those findings.

Bergdhl *et al*, study^[10], appeared that the use of systemic drugs was

observed in 86% of patients especially with antihypertensive, anti-depressant drugs and other similar chronic use of drugs as a significant factor in BMS. The recent findings of this study were completely in agreement with Bergdhl et al study^[10].

Concussion:

Patients with antihypertensive and antidepressant medications occupied the first two ranks of BMS occurrence respectively, followed by patients under ant diabetic drugs, other etiological factors such as hormonal changes; fissured tongue and candidiasis also share in causing BMS. Tongue presented the most common site affected by BMS and older age groups were involved more than other ages.

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