



Oral Manifestation of Stress Related Disorders among Patients Visiting a Private Dental Hospital - An Institutional Study

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(Received: 27 October 2023

Revised: 22 November

Accepted: 26 December)

KEYWORDS

Oral manifestation, stress, oral lichens planus, recurrent aphthous ulcer, burning mouth sensation, MPDS, innovative technique, innovative technology, novel method.

ABSTRACT:

Introduction: Stress is the most common factor affecting most people. It can be of any form. This shows some of the manifestations in the oral cavity. The oral manifestations include oral lichens planus, recurrent aphthous ulcer, burning mouth sensation and myofascial pain dysfunction.

Objectives: The main aim of this study is to analyse the prevalence of oral manifestation of stress related disorders in general South Indian populations.

Methods: A cross sectional study was conducted in a private dental hospital, Chennai. The data were collected from the hospital database. The criteria considered while collecting data were age, gender, habit, and medical history. The collected data were exported to Microsoft Excel and IBM SPSS software and the correlation of the data was achieved through Chi square test.

Results: Patients have a high percentage of lichens planus(48.53%) followed by aphthous ulcer (29.41%), Burning mouth sensation(20.59%) and MPDS(1.47%). The medical history of the patient found that the oral manifestation of stress was the most common in normal patients (73.53%) followed by Diabetes(11.78%), combination of diabetes and hypertension(5.68%), and anemia(5.68%). Recurrent aphthous ulcer has shown to be affected more in 21 to 35 years of age group, burning mouth sensation and lichen planus has shown to be affected more in 51 to 65 years of age group and Myofascial pain dysfunction has shown to be affected in 36 to 50 year of age group. Chi square test was done, $p=0.000045(p<0.05)$, it is statistically significant.

Conclusions: Oral Lichen planus is shown to be more prevalent than any other oral manifestation and the least encountered is Myofascial pain dysfunction. Within the scope of the present study, it can be concluded that, although the etiology of most oral lesions is not known, the role of stress and other psychogenic factors cannot be ruled out.

1. Introduction

Stress related diseases can cause oral manifestation in oral cavity involving gingiva, buccal mucosa, palatal region, tongue and temporomandibular joints. The oral manifestations can be seen in various stress related diseases like lichen planus, recurrent aphthous ulcer, Myofascial pain dysfunction and burning mouth sensation. These manifestations have to be taken into serious consideration as it can cause a variety of complications. A study shows some of the oral manifestations due to stress related disorder has gender predilections as well as age predilection supposing Xerostomia which is dryness of cavity found in older people whereas the burning mouth syndrome and

myofascial pain dysfunction were more prevalent in females and males respectively [1]. The most common ulcers that are caused in the oral cavity due to stress are recurrent aphthous ulcers and oral lichens planus [2]. The recurrent aphthous ulcer is an inflammatory condition which is a small, shallow, painful sore with round or ovoid ulcer with well defined erythematous margins like halo and central yellow or grey floor. It can be treated mostly by the rinse of mouthwash or it heals by itself [3]. Treatment for the long standing recurrent aphthous ulcer is to be more acceptably the topical antibiotic ointment which makes the ulcer painless, low frequencies for the recurrence of aphthous ulcer and makes the ulcer to disappear [4]. Burning mouth sensation is a recurrent



burning sensation of the mouth which is caused by many factors like gastric reflux, deficiency of vitamin B12, anxiety or depression, allergy from denture materials, some of the hormonal changes, etc. Myofascial pain dysfunction is TMJ disorder is characterized by clenching of teeth, severe pain, and clicking sound from TMJ [5]. Lichen planus is an inflammatory condition and it presents bilaterally. It consists of six types namely, reticular, atrophic, papular, bullous, plaque, and erosive [6]. Stress related diseases that lead to lip biting, mouth breathing, smoking, and pan chewing habits can in turn lead to oral squamous cell carcinoma [7]. Oral cancer is a major disease which occurs most commonly in the lip and oral cavity. The frequency of oral cancer is much higher in southern Asia [8]. The etiology of oral squamous cell carcinoma is stress to the oral cavity which causes chronic irritation in the oral cavity [9]. The verbal violence is the most common violence which is common among the surgeons [10]. Oxidative stress can lead to release of free radicals. Only few studies on prevalence of these stress related diseases are done in Indian population. Similar studies were conducted in various regions of countries. A survey shows that the prevalence of oral manifestation of stress related disorder in exam going dental students of medical college which was shown to have 91% of them have been affected [11]. Another study shows myofascial dysfunction and its correlation with masseter muscle. First year students experience the elevation of masseter muscle whereas the older age groups show the less elevation of masseter muscle thus it shows that they experience less stress factors [12].

2. Objectives

The aim for this study is to analyze the prevalence of oral manifestation of stress related disorder among patients visiting a private dental hospital in Chennai.

3. Methods

A retrospective cross sectional study was conducted in the Department of Oral Pathology and Microbiology at Saveetha Dental College and Hospital, Chennai. Data of the patients diagnosed with stress related diseases was collected from the hospital database, the random sampling technique was done in Dias (dental information archiving software) retrospectively. All the patients reported with stress related diseases like lichen planus, burning mouth syndrome, recurrent aphthous stomatitis

in dysfunction syndrome were included in the study. Evaluation of the stress was done by a proper clinical history and the level of stress was related to various disease like lichen planus, aphthous ulcer, burning mouth sensation and MPDS. All these diseases are well known to have stress as their main etiological factor. Hence proper evaluation of the clinical symptom, clinical history and evaluation of the stress was done before the selection of the study subjects. A single calibrated examiner evaluated the digital case records of the patients reported to the outpatient department of the Hospital. After collecting the data, the following criteria were considered; age, gender, medical history, site of oral manifestation, and habit of the patients. These data were sorted and tabulated in Microsoft Excel and then entered in IBM SPSS statistical software (version 23). Descriptive analysis was performed. Categorical variables were expressed in frequency and percentage. Chi-square test was used to test associations between categorical variables. P value < 0.05 was considered statistically significant. Inclusion criteria includes stress related disorders in oral cavity, age of the patient, gender of the patients, systemic illness of patients. Exclusion criteria disease other than stress.

4. Results

On reviewing the patient's record from the database from records dating from June 2019 to March 2021, 293 patients have been found to have stress related disorder in the oral cavity. The age of the patient was segregated into 5-20 years, 21 - 35 years, 36-50 years, 51-65 years and 66-80 years. Out of that 166 (56.66%) of them were found to have Oral lichen planus (Figure 1), 100 (24.14%) of them were found to have recurrent aphthous ulcer, 26 (8.87%) of them were found to have burning mouth sensation and 1 person (0.34%) was found to have myofascial pain dysfunction.

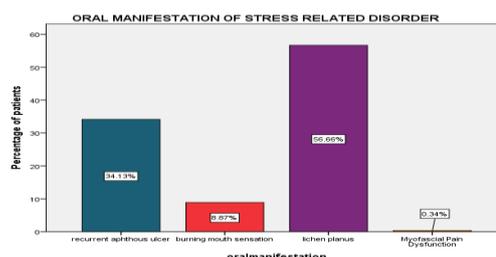


Figure 1 represents the prevalence of various stress related disorders. X axis represents the various stress



related disorders while the Y axis represents the percentage of the patient affected with oral manifestation of stress related disorder. Blue colour represents the recurrent aphthous ulcer, Red colour represents the burning mouth sensation, violet colour represents the lichens planus and orange colour represents the Myofascial pain dysfunction. 56.66% of them were affected with lichen planus, 34.13% of them were affected with recurrent aphthous ulcer, 8.87% of them were affected with burning mouth sensation and the least 0.34% of them are affected with myofascial pain dysfunction. Most common stress related disorder reported was lichen planus.

Males (50.17%) reported to have more stress related disorders when compared to females (49.83%) (Figure 2).

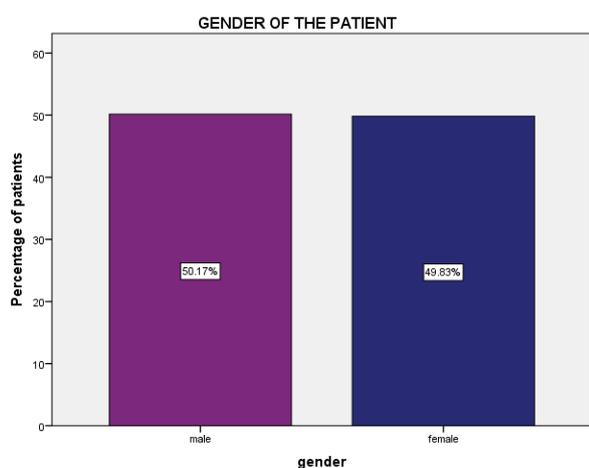


Figure 2 represents the prevalence of stress related disorders in males and females. X axis represents the gender of the patient and Y axis represents the percentage of the patient visiting the dental hospital with oral manifestation of stress related disorder. Violet colour represents the male and blue colour represents the female. Males (50.17%) presented with oral manifestation of stress related disorders when compared to female (49.83%).

These diseases were prevalent in 36 to 50 (31.74%), followed by 51 to 65 years of age (31.40%) (Figure 3).

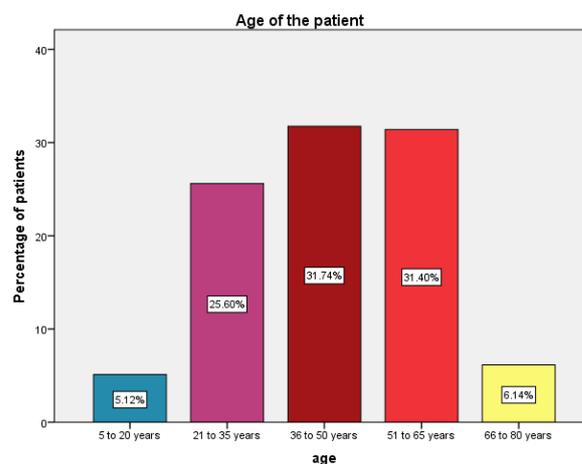


Figure 3 represents the age of the patients reported with stress related disorder. X axis represents the age of the patient which were categorised as 5 to 20 years, 21 to 35 years, 36 to 50 years, 51 to 65 years and 66 to 80 years and Y axis represents the percentage of the patient who was affected with oral manifestation of stress related disorder. Blue colour represents the age group of 5 to 20 years, light violet colour represents age group of 21 to 35 years, brown colour represents age group of 36 to 50 years, light red colour represents the age group of 51 to 65 years, and yellow colour represents the age group of 66 to 80 years. Highest age group affected was 36 to 50 years of age (31.74%), followed by 51 to 65 years of age (31.40%), 21 to 35 years of age (25.60%), 66 to 80 years of age (6.14%), and the least 5 to 20 years of age (5.12%).

In both males and females lichen planus was the most common type of stress related lesion reported was oral lichen planus and p value was obtained as $=0.002(p<0.05)$ and was statistically significant. Recurrent aphthous ulcer has shown to be affected more in 21 to 35 years of age group, burning mouth sensation and lichen planus has shown to be affected more in 51 to 65 years of age group and Myofascial pain dysfunction has shown to be affected in 36 to 50 year of age group, Chi square test showed p value of $0.000045(p<0.05)$, and was statistically significant.

5. Discussion

Lichen planus is a relatively common dermatoses that also affects the oral mucosa. The etiology of LP comprises of a cell-mediated immunological response or disturbance, which leads to the degeneration of the basal



epidermal cells. From the graph (fig 4), the lichen planus is more prevalent in 51 to 65 years of age group and this result was in accordance with the study conducted in Spain about the oral lichen planus. This study shows that the lichen planus affected more in the age group between 50 and 70 years [(13)].

In cases of aphthous ulcers, acute psychological problems appear to have precipitated attacks of the disease. Iron, vitamin B12, and folic acid deficiency are also considered to be predisposing factors. Recurrent aphthous ulcers are more prevalent in the age group of 21 to 35 years of age groups and this result was in accordance with study conducted in Sulaimani city. This study shows the recurrent aphthous ulcer has more prevalence in the age group of 21 to 29 years of age [14]. From the graph (Fig 5) oral manifestation of stress is more in females in comparison with males. Oral lichen planus shows more manifestation females than the male and the result was in accordance with the study conducted in Kerala. This study shows that there was more prevalence in females over males [15].

Burning mouth syndrome is associated with burning sensation of the tongue, lips, and other mucosal surfaces. Sleep disturbances are a common finding among burning mouth syndrome patients. Burning mouth sensation is more prevalent in females than males and it was in accordance with the study conducted by Tatullo et al. This study shows that female patients get more affected by the burning mouth sensation than the male [16]. Burning mouth sensation is more prevalent in the age group of 51 to 65 years and it was in accordance with the study conducted by Bergdahl et al. This study shows that there is more prevalence in middle aged women [17]. Recurrent aphthous ulcers are more prevalent in females than the males. Stress was a significant cause for clenching and grinding habits resulting in spasm of muscles of mastication. Myofascial Pain Dysfunction is the least reported case and it is widespread muscle pain and tenderness caused by the hyperstimulation of nerves. The most common features that were characterised are by clicking sound in Temporomandibular joint, headache, neck pain, trismus, pain TMJ area, clenching which further leads to bruxism [18]. The treatment of recurrent aphthous can be given by the analgesics if it becomes painful, anti inflammatory drug if the surrounding mucosa get inflamed, antibiotics if it is due to any infection and corticosteroid if it is aggressive

outbreak [19]. Oral lichens planus sometimes become more severe and the treatment can be given at the earliest by giving the corticosteroids [20]. The treatment for the both Myofascial pain dysfunction as well as burning mouth sensation is stress reduction [21]. A study has shown that the female are prone to the chronic stress than the males [22].

Within the scope of the present study, it can be concluded that, although the etiology of most oral lesions is not known, the role of stress and other psychogenic factors cannot be ruled out. Stress to be one of the major contributory factors in the development and progression of oral lesions. Limitation of this study was less sample size and homogenous population.

From this study we can conclude in the group of stress related disorders, oral Lichen planus is shown to be more prevalent and the least encountered is Myofascial pain dysfunction. Recurrent aphthous affects the population at an earlier age of 21 to 35 years and it has male predilection; oral lichen planus and burning mouth sensation is prevalent in the population at old age of 51 to 65 years and 36 to 50 years respectively whereas oral lichen planus gets affected more in females and burning mouth sensation affects more in males.

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