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INCIDENCE AND MANAGEMENT OF BURNING MOUTH SYNDROME IN A PRIVATE DENTAL INSTITUTION

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ABSTRACT

INTRODUCTION: Burning mouth syndrome is characterized by burning discomfort in the tongue or mucous membranes of the mouth that cannot be attributed to other disorders such as candidiasis or irritation caused by dentures. Patients often present with multiple oral complaints, including burning, dryness, and taste alteration. The main aim of this study is to evaluate the incidence and management of burning mouth syndrome in our institution.

MATERIALS AND METHODS:A retrospective study was conducted among patients visiting a dental college with the help of dental records from saveetha dental hospital. The required data were collected and statistically analyzed using SPSS software. A Chi-square test was done to find the p-value.

RESULTS: In 19-50 years patients, females (25%) are most commonly affected by burning mouth syndrome. In 51-80-year-old patient males (29.17%) are commonly affected by burning mouth syndrome. 41.67 % of males are treated by TCA and anxiolytics and 8.33% by aminophylline. 33.33% of females are treated by TCA and anxiolytics and 16.67% by amitriptyline.

CONCLUSION: From the limitation of this study, burning mouth syndrome is seen equally in both the genders and predominantly in the 51-80 years age group. Alpha 1 lipoic acid, TCA and anxiolytics are commonly used to control the burning mouth syndrome.

KEYWORDS: Burning mouth syndrome, treatment, incidence, innovative technology

INTRODUCTION:

Burning mouth syndrome is characterized by burning discomfort in the tongue or mucous membranes of the mouth that cannot be attributed to other disorders such as candidiasis or irritation caused by dentures(1). Patients often present with multiple oral complaints, including burning, dryness, and taste alterations (2). There is still no clear view on etiology, pathogenesis, or treatment of burning mouth syndrome. Women, particularly after menopause, are more likely to experience burning mouth symptoms. Patients usually wake up pain-free, but their symptoms worsen during the day and into the evening (3). The anterior two-thirds of the tongue, the anterior hard palate, and the mucosa of the lower lip are the most often affected areas, with the anterior two-thirds of the tongue, the anterior hard palate, and the mucosa of the lower lip becoming the most often concerned(4). Depression and anxiety play a significant role in modulating pain perception, since they can enhance or decrease nerve transmission from peripheral pain receptors, thus altering the human perception of pain(5). Chronic anxiety or depression, multiple dietary disorders, and type 2 diabetes have also been linked to burning mouth syndrome in the past. These disorders, however, have not been reliably related to the syndrome, and medication for them has had no effect on the burning mouth symptoms(6). Burning mouth syndrome can be caused by dysfunction of multiple cranial nerves involved with taste sensation, according to recent research. Symptoms improve in the morning, deteriorate through the day, and usually disappear at night(7). A burning painful feeling in the mouth, frequently confused with dysgeusia and xerostomia despite regular salivation, is one of the most frequent symptoms. In nearly two-thirds of cases with no visible disease in the oral mucosa, a peri- or postmenopausal woman with various medical comorbidities complains of the classic triad of unremitting oral mucosal burning pain associated with dysgeusia and xerostomia(8). An immunologic etiology has also been suggested. Dietary antigens have been shown to cause allergic reactions in BMS patients. The procedure for BMS management is complicated due to the vast number of related variables(9). A successful treatment plan for these patients should be focused on close cooperation among various oral medicine specialists.(10) To continue, it's critical that each patient be interviewed in a comfortable environment so that the investigator can get acquainted with the topic. Although a large variety of drugs, medications, and miscellaneous treatments has been proposed in BMS, the treatment management of this syndrome is still not satisfactory, and there is no definitive cure. BMS patients have shown a good response to long-term therapy with systemic regimens of antidepressants and anxiolytics(11). In addition, some patients undergoing topical capsaicin administration have experienced a partial or even complete remission of their pain. Daily topical use of clonazepam (¼ or ½ tablet applied 3 times each day for sucking) has shown partially to complete pain relief in most patients with idiopathic BMS, suggesting

a possible local effect of this drug on gamma-amino-butyric-acid receptors (GABA-receptors) within the oral mucosa(12). Because of the debilitative nature of this syndrome, as well as the frequently observed involvement of psychological disorders, BMS patients, particularly those resistant to treatment, should be offered regular follow-up from two to four times a month during the symptomatic period. Each evaluation should include an analysis of pain levels, personality, psychological functioning, and quality of life(13). A personal interpretation of the evolving nature of the syndrome should be included in a patient diary(14).
Our team has extensive knowledge and research experience that has translated into high quality publications.(15–34) The main aim of this study is to find the incidence and management of burning mouth syndrome in our institution.

MATERIALS AND METHODS:
Study Setting: The study was conducted with the approval of the Institutional Ethics Committee [SDC/SIHEC/2020/DIASDATA/0619-0320].
Study Design: It was a retrospective study. The study was designed to include all dental patients of ages from 1-80 years and patients having burning mouth syndrome were included in the study. The patients who did not have burning mouth syndrome and age above 80 were excluded from this criteria.
Sampling Technique: The study was based on a non-probability consecutive sampling method. To minimize sampling bias simple random sampling was done. The advantages of the present study include the large availability of data and similar ethnicity, and the disadvantages of this particular study were mainly the geographical limitations and the isolated populations.
Data Collection and Tabulation:A total of 5,35,951 patient treatment records between June 2019 to February 2021 were assessed for the study. The data collection and analysis were done by two examiners. Cross verification was done with the help of Photographs and radiographic evidence. The inclusion criteria were children between the ages of 1-80 years of age, children who had burning mouth syndrome, and complete records of the patient and treatment done in the case sheet with photographic evidence. Exclusion criteria for the study were patients above 80 years of age and people not having burning mouth syndrome, incomplete case records, and missing photographic proof of completed treatment. To avoid sampling bias, simple random sampling was done. Based on the inclusion and exclusion criteria, the dental records of 54 patients who had burning mouth syndrome were finalized for data analysis.
Statistical Analysis: The extracted data were tabulated in a spreadsheet (Excel 2017: Microsoft Office) and analyzed using SPSS Software by IBM Version 23.0 (SPSS, Inc., Chicago). Descriptive statistics and chi-square tests were performed with the level of significance at 5% ($p<0.05$). The results were obtained in the form of graphs and tables.

RESULTS:
The outcomes of the study are depicted in Figures 1-5.

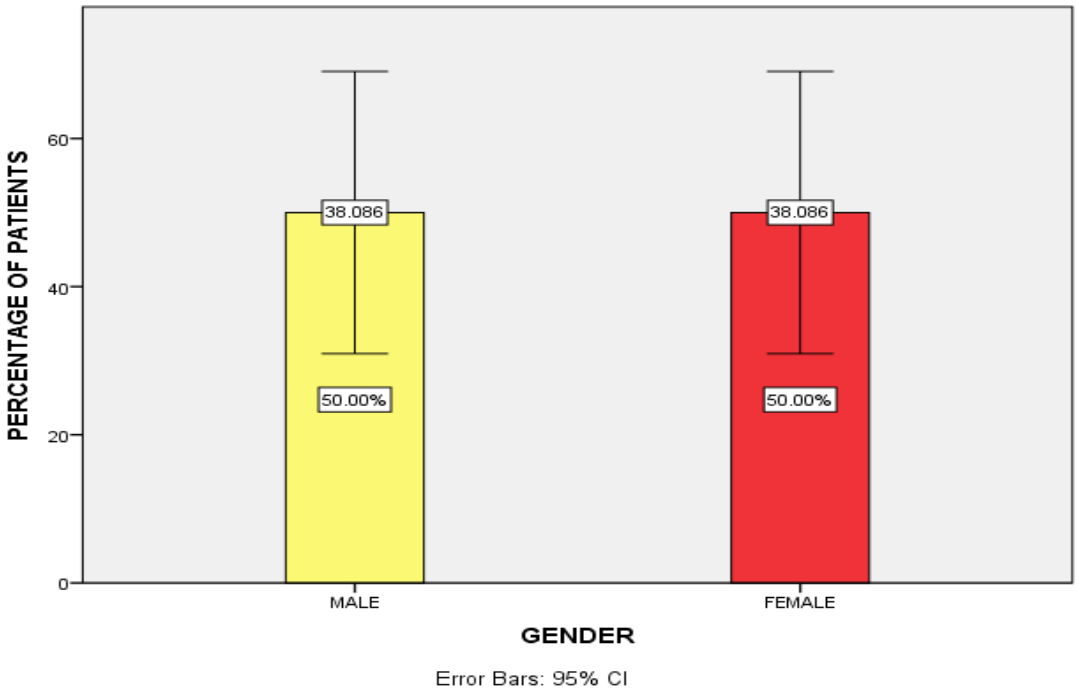

Figure 1: The bar graph represents the gender distribution of the patient.
The X-axis represents the gender of patients. The y-axis represents the percentage of burning mouth syndrome patients. The yellow colour bar represents the male population (50%). The red colour bar represents the female population(50%).

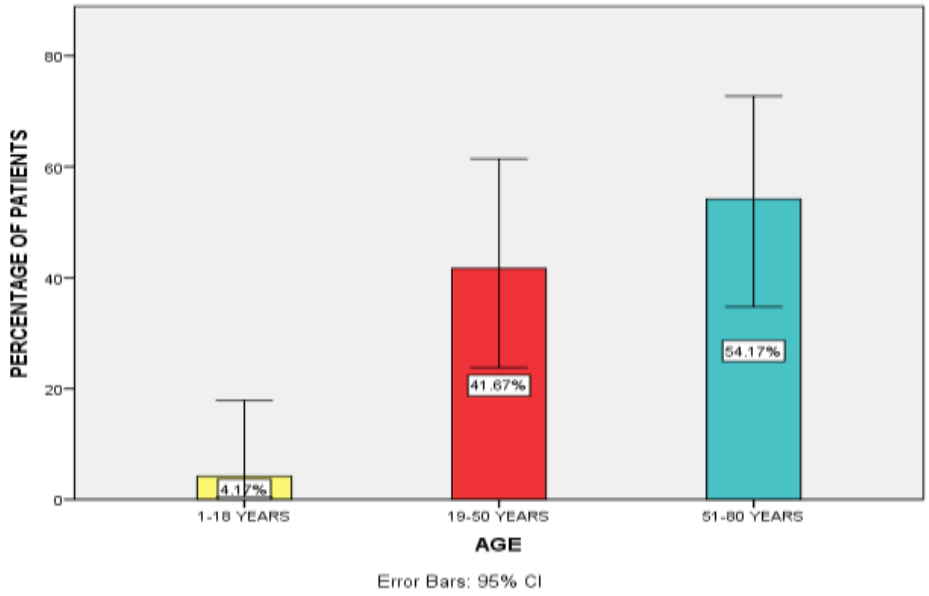

Figure 2: The bar graph represents the age distribution of the patients having burning mouth syndrome.

The x-axis represents the age of the patients. The y-axis represents the percentage of burning mouth syndrome patients. The yellow colour bar represents the 1-18 years age group of patients (4.17%). The red colour bar represents the 19-50 years age group patients (41.67%). The blue colour bar represents the 51-80 years age group patients (54.17%)51-80 years old patients are more commonly affected by burning mouth syndrome.

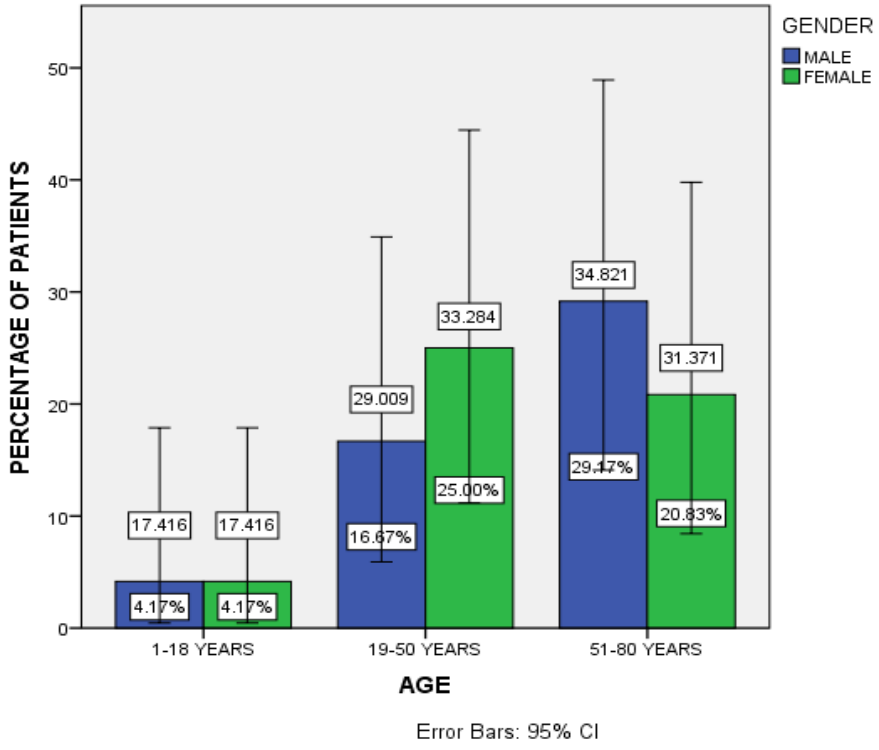

Figure 3: The bar graph represents the association between gender and age of patients having burning mouth syndrome.

The x-axis represents the age of the patient. The y-axis represents the gender of patients having burning mouth syndrome. The blue colour represents males and the green colour represents females. In 19-50-years patient, females (25%) are most commonly affected by burning mouth syndrome. In 51-80-year-old patient males (29.17%) are commonly affected by burning mouth syndrome. The chi-square test was done and p-value=0.65 which is statistically non-significant. Thus, 51-80 years males are more commonly affected by burning mouth syndrome.

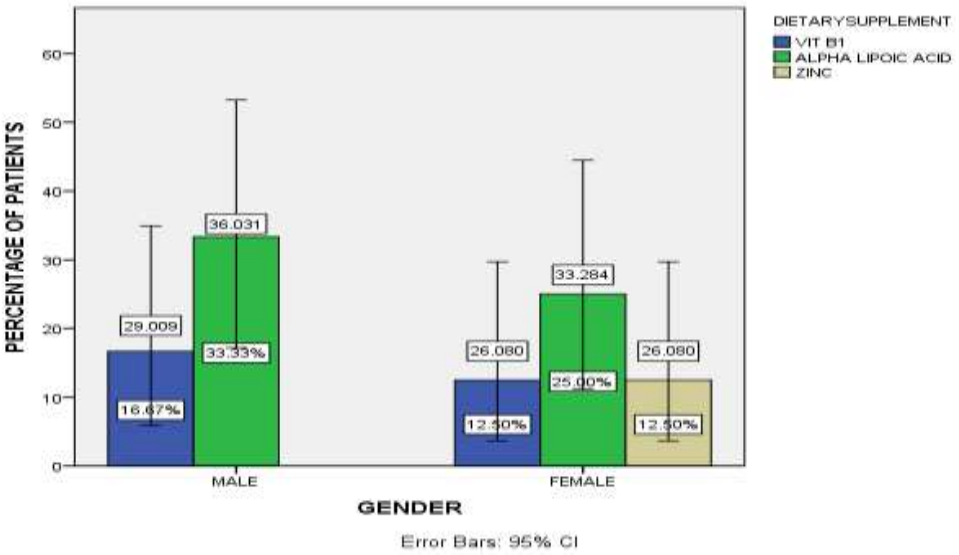

Figure 4: The bar graph represents the association between gender and nutritional supplement provided for the burning mouth syndrome patients.

The x-axis represents the gender of the patient and the y-axis represents the percentage of patients having burning mouth syndrome. alpha-lipoic acid is most commonly used as a supplement in both males (33.33%) and females(25%). In males, vitamin B1 (16.67%) is also used as a nutritional supplement. The Chi-square test was done and P-value=0.42 which is statistically non-significant. Alpha-lipoic acid is commonly used as a nutritional supplement for burning mouth syndrome. Zinc is used only in females.

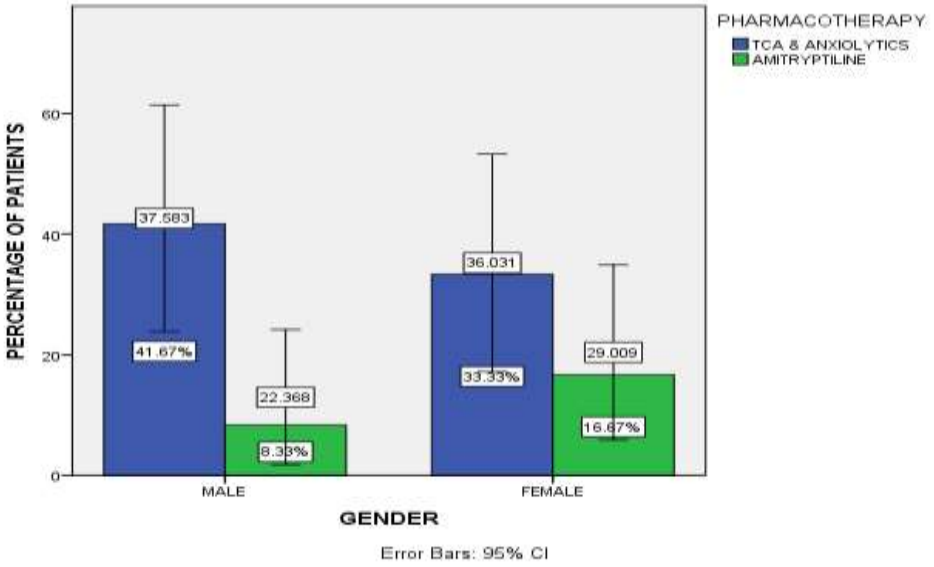

Figure 5:The bar graph represents the association between pharmacotherapy and the gender of patients affected by burning mouth syndrome.

The x-axis represents the pharmacotherapy and the y-axis represents the gender of patients having burning mouth syndrome. The blue colour represents the male. The green colour represents the female. TCA and anxiolytics are most commonly used as pharmacotherapy in burning mouth syndrome. 41.67 % of males are treated by TCA and anxiolytics and 8.33% by aminophylline. 33.33% of females are treated by TCA and anxiolytics and 16.67% by amitriptyline. The chi-square test was done and P-value=0.03 which is statistically significant. Anxiolytics and TCA are commonly used as a treatment choice for treating burning mouth syndrome in both males and females. Amitriptyline is mostly used in females.

DISCUSSION:

In this study, it is seen that males and females of equal proportion have burning mouth syndrome 50%. Similarly in a study by Hens et al, it is seen that there is no gender difference between gender of the patients having burning mouth syndrome(35). In another study by Marino et al, it was seen that males were most commonly affected by burning mouth syndrome(36).

In this study, it is seen that 51-80 years old age patients (54.17%) are most commonly affected by burning mouth syndrome. Similarly in another study by Grushka et al, it was seen that old age people are affected by burning mouth

syndrome(37). In another study by Nureddin et al, it was seen that middle-aged people are most commonly affected by burning mouth syndrome(38).
In this study, it was seen that males of age 51-80-year-old patients are commonly affected by burning mouth syndrome. Similarly in another study by Saboowala et al, it was seen that males are commonly affected by burning mouth syndrome in old age people(39). In another study, it was seen that females are commonly affected by burning mouth syndrome(40).

In this study, it was seen that alpha 1 lipoic acid is commonly used as a nutritional supplement for burning mouth syndrome. In another study by Momin et al, it was seen that lipoic acid was used as a supplement for burning mouth syndrome. In another study, it was seen that Vitamin B1 is commonly used as a supplement for burning mouth syndrome(41).

In this study, it was seen that TCA and anxiolytic drugs are commonly used to treat burning mouth syndrome. Similarly, in another study by Sugal et al, it was seen that anxiolytics drugs are commonly used to treat burning mouth syndrome. In another study, it was seen that corticosteroids are used to treat burning mouth syndrome(42).

Oral burning is often accompanied by other symptoms, such as the dry mouth and altered taste, according to the majority of studies. Taste changes affect up to two-thirds of patients, with reports of constant tastes (bitter, metallic, or both) and changes in taste strength. When oral burning is accompanied by dysgeusia tastes, stimulation with food(43). Biobehavioral techniques' reported success in the treatment of burning mouth syndrome may be due to an improvement in pain-coping strategies rather than a “cure” of the disorder. Similarly, the analgesic and anticonvulsant properties of tricyclic antidepressants and some benzodiazepines, as well as the potential effect of benzodiazepines on treating, may be more closely related to their usefulness. Relationship between burning mouth syndrome and mucosal ulcerative or erosive lesions, periodontitis, and geographic tongue, the majority of studies have found no significant changes in intraoral soft or hard tissues. Chemical irritation and allergic reactions to dental materials, as well as galvanic currents between dissimilar metals, have not been discovered to be harmful(44).

While benzodiazepines can reduce oral burning by acting as a sedative-hypnotic, this seems doubtful since the maximum effect of clonazepam is typically seen at lower doses. The beneficial effects of tricyclic antidepressants in reducing chronic pain suggest that these agents may function as analgesics in low doses. The clinical history is useful in determining whether or not you have burning mouth syndrome. The majority of patients with the condition experience a rise in pain intensity from morning to night, a decrease in pain while feeding, oral dryness that waxes and wanes with the burning, and regular taste disturbances(45). Clonazepam was found to be successful in inducing symptom remission in patients with BMS in a recent meta-analysis. It can be used in two ways: topical and systemic. Two randomized controlled trials looked at the effects of topical clonazepam. When compared to placebo, a 1 mg tablet taken three times a day and sucked for three minutes before spitting significantly reduced pain intensity. Alpha-lipoic acid (ALA), an antioxidant sold in health food shops, has been tested in at least nine controlled trials of varying quality. The most positive results came from the first papers published by Femiano et al.(46)

LIMITATION AND FUTURE SCOPE

The limitations of the present study were that the study sample size with respect to the population of the representative region was less. Furthermore, fewer variables were included in the study. We recommend that future studies should incorporate a larger sample size with the inclusion of more variables.

CONCLUSION:

From the limitation of this study, burning mouth syndrome is seen equally in both the genders and predominantly in the 51-80 years age group. Alpha 1 lipoic acid, TCA and anxiolytics are commonly used to control the burning mouth syndrome.

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Conflict of Interest: There are no conflicts of interest.

Ethical Clearance- It is taken from “Saveetha Institute Human Ethical Committee” (Ethical Approval Number-SDC/SIHEC/2020/DIASDATA/0619-0320)

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