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Oral Lichen Planus- Clinical and Psychological Stress Profile- A Preliminary Study

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Abstract

Background: *Oral lichen planus is a common, chronic autoimmune mucocutaneous disease which can affect oral mucosa with varying presentation from keratotic to erosive, ulcerative or bullous lesions. Factors such as stress have been mentioned as etiologic factors in lichen planus, but there is still controversy concerning the role of stress as a major etiologic factor in the pathogenesis of lichen planus. We aim to evaluate the clinical characteristics of patients with oral lichen planus and to estimate the level of psychological stress in patients with oral lichen planus compared to asymptomatic control group.*

Methods: *A pilot study was conducted in the Department of Oral Medicine and Radiology, Government Dental College, Kottayam. All new patients with clinical diagnosis of OLP were included as cases along with age and sex matched control group.The experimental group consisted of OLP subjects (n=20) and control group consisted of apparently healthy general Out Patient Department (OPD) patients (n=20). The Holmes and Rahe Stress Scale was used to evaluate psychosocial stress.*

Results: *The study included 20 OLP patients aged 34-76 years (mean age 56.80) with male to female ratio of 1.5: 3.5. The mean stress score among cases based on Holmes and Rahe Stress scale was found to be 182.50 (moderate risk) and controls was 118.40 (low risk). The p value was not found to be significant between cases and controls to prove association between OLP and stress based on Holmes and Rahe Stress Scale.*

Conclusion: *The mean stress score was found to be high in the OLP group compared to control group. However based on this pilot study it cannot be concluded that OLP onset is significantly associated with stress. Hence further studies are recommended with larger population sample in order to attain definitive conclusions.*

Introduction

Lichen planus (LP) is a chronic autoimmune disease affecting mucosa, skin and its appendages. The prevalence of oral lichen planus in general population varies from 1-2%.[1] A recent report from Kerala shows prevalence rate of 0.64%.[2] Oral lichen planus (OLP) is reported to occur more frequently than the cutaneous form and tends to be more persistent and resistant to treatment. Andreasen classified it in six forms,

which was later simplified by others into three types: reticular, atrophic and erosive.[3,4] The buccal mucosa, dorsum of tongue and gingiva are commonly affected.

OLP is an immunologic disorder by a T-cell mediated immune response. Certain factors are known to aggravate the disease. These include stress, smoking and spicy foods.[5] Any factor that can influence the cell-mediated immune response can play a role in the development of the disease. Factors such as stress, have been mentioned as etiologic factors in lichen planus, but there is still controversy concerning the role of stress as a major or minor etiologic factor in the pathogenesis of lichen planus[6]

Usually oral lichen planus is asymptomatic but, particularly the erosive form is painful and interferes with normal functions. The erosive form of the disease is the predominant type in 40% of patients at initial presentation.[7] There is also evidence of development of malignancy in lesions of OLP; especially in the erosive type. The malignant transformation rate may be upto 0.8% to 1.1%.[7,8] Various treatment regimens have been designed to improve management of symptomatic OLP, but a permanent cure is not yet possible.[9] The first-line pharmacologic treatment relies on topical steroids.[10]

Background & Rationale

Several epidemiological studies in various parts of the world have described the clinical characteristics of OLP. The purpose of this study was to determine the clinical presentation, the predisposing and aggravating factors in patients with OLP. From our clinical experience, many patients consider that exacerbation of OLP lesions are associated with increased exposure to stressful events. Stress have been implicated as a causal factor for OLP in certain studies. However the fact that whether it is a cause or consequence is still left undetermined. Similar studies are lacking in our settings, where there is a high prevalence of OLP.

Methodology

A pilot study was conducted in the Department of Oral Medicine and Radiology, Government Dental College, Kottayam including 20 patients with clinical diagnosis of OLP. Lichenoid reactions and OLP with dysplastic features were excluded from the present study. Detailed information about the age, sex, medical conditions, personal habits and history of stress was obtained. Controls included a total of 20 age and sex matched patients who attended the outpatient clinic of Department of Oral Medicine for routine dental check-up. They were apparently healthy patients with no mucosal disease. Permission from the hospital ethics committee and informed written consent were obtained from all the subjects.

The Holmes and Rahe Stress Scale were used to evaluate psychosocial stress. This was developed in 1967, by psychiatrists Thomas Holmes and Richard Rahe as a way to determine whether stressful events might cause illnesses. Patients were asked to tally a list of 43 life events based on a relative score. Subsequent validation has supported the links between stress and illness. It is a sensitive screening tool comprising of a quick and simple questionnaire. The total stress score above 300 is considered as severe risk for illness. The patients with a total score of 150- 299 comes under moderate stress group and patients having score less than 150 may be considered to have slight risk of illness.

Statistical analysis was done using SPSS version 22 software. Descriptive statistics were analysed for baseline variables. T-test was used to compare stress risk between patients with OLP and the control group p value of less than 0.05 was considered significant.

Results

Table 1: Characteristics of study sample

Variable	Cases	Controls
Mean age	42 (34- 76) years	69.60 (55- 76) years
Gender	Males 6(30%) Females 14(70%)	Males 8(40%) Females 12(60%)

Symptoms	Pain and burning 14(70%) Burning 4(20%) Asymptomatic 2(10%)	
Medical history	Diabetes mellites 8(40%) Hypertensive 4(20%) Ayurvedic medicines 2(20%) Nil 2(10%) Others 4(20%)	Diabetes mellites 8(40%) Hypertensive 4(20%) Nil 4(20%) Others 4(20%)
Oral hygiene status	Good 4(20%) Moderate 8(40%) Poor 8(40%)	Good 6(30%) Moderate 4(20%) Poor 10(50%)
OLP type	Reticular 12(60%) Erosive 8(40%)	

Out of the 20 patients there were 14 males (60%) and 6 females (40 %). Buccal mucosa was the most common site. The mean age was 56.80 years with an age range of 34- 76 years. 16 patients were symptomatic during time of initial visit with burning sensation (75 %) as the most reported among the symptoms. 8 patients each from case and control group were diabetic, and 2 patients in the case group had history of ayurvedic medicine intake prior to onset of OLP. History of major stressful life events were elicited in 20% OLP patients as initiating factors. Multiple oral sites were affected in 80% patients. Buccal mucosa and tongue were the mostly affected sites. Desquamative gingivitis was seen in 50 % patients. Majority of the cases were predominantly reticular type followed by erosive type (table 1).

Table 2: Comparison of total stress score in cases and controls

	GROUP	N	Mean	Std. Deviation	Std. Error Mean
STRESS SCORE	CASES	20	182.50	85.301	19.074
	CONTROLS	20	118.40	56.738	12.687

As seen in the table 2, mean stress score was comparatively high in the case group. The stress score distribution in the case group was: severe (10 %), moderate (50%), mild (40%). In the control group 12 patients (60%) were in the moderate risk group whereas rest of the patients were found to be in mild stress risk group (figure 1). However on comparing the risk score between case and control group, we did not get any statistically signification association (fisher's t test value .304).

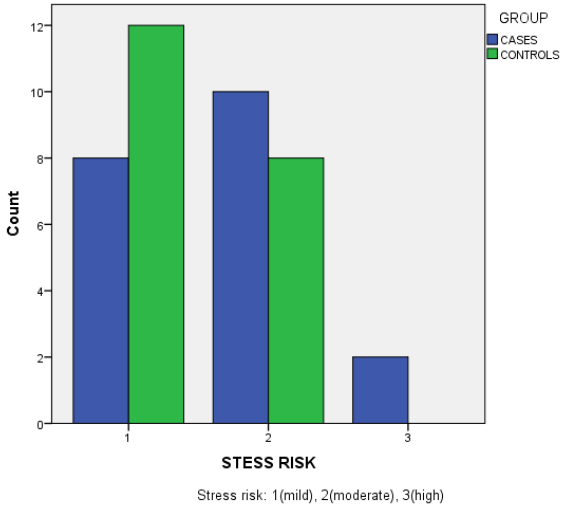

Figure 1: Graphical representation of stress risk in cases and controls

Discussion

OLP is a fairly common chronic mucocutaneous disease having a prevalence rate of about 1-2% among adult population.[1]Although exact etiology

of OLP is unknown, cell -mediated immune system plays an important role in OLP pathogenesis. Stress initiates various autoimmune reactions, which contribute to the pathogenesis of OLP.[11]OLP affects women more than men at a ratio of approximately 1.4:1, predominantly in adults over 40 years of age. There may be co-incident skin lesions that present typically as flat-topped violaceous papules affecting the wrists, ankles, and genitalia.OLP has several clinical subtypes including reticular, erosive, atrophic, papular, plaque-like, and bullous lesions. Majority of the lesions of OLP are typically bilateral, symmetrical and the buccal mucosa was the most common site of involvement, followed by the tongue and the gingiva. Reticular type of OLP was the most common form.[12]The findings presented in this study are consistent with data from previous OLP studies in regard to lesion location, its clinical type, disease chronicity, symptoms and medical history.[2,3,7,12]

Stress, as well as other psychological alterations, seems to modify and promote dysregulation of immune functions by altering cytokine balance and increasing Th2 response, which is associated with the development of autoimmune diseases.[13] Several researchers have previously evaluated the relationship between elevated stress levels and onset of OLP. Using the general health questionnaire (GHQ) in 2004, Chaudhary found significantly higher levels of stress in OLP patients.[14] Rojo-Moreno et al., in a controlled study on 100 patients using different psychometric tests found greater anxiety and depression in OLP patients than the controls.[15] On the contrary, Allen et al., in a controlled study using the State Trait Anxiety Inventory (STAI), found no significant difference between the patients with lichen planus and control subjects.[16]In this study the Holmes and Rahe stress scale was used to assess the psychological stress score in a sample population where any studies using this scale was not reported previously. The mean stress score was higher in the OLP group, compared to control group. But the statistical significance for the onset of OLP in association with a recent stressful episode was not established with this study. This may be due to assessment based on small sample size. In symptomatic patients with OLP, burning sensation, pain as well as fear of malignancy can be itself be a stress factor. The psychological questionnaire relied a lot on subjective analysis of stress but objective stress analysis was not performed. Further research regarding waning of OLP lesions after alleviation of psychological stress also have to be carried out to suggest stress as an etiological factor of OLP. As there is much controversy regarding the available literature in this aspect, a uniformly validated subjective and objective stress assessment protocol has to be developed and followed before upholding any validation regarding association of OLP and psychological stress profile.

Conclusion

Oral lichen planus is a psychosomatic disease and literature confirms the presence of higher levels of stress in patients with OLP. The present study involved a small sample size and the results of this study seems contradictory to majority of existing literature. Further research can be directed at assessing the psychological profile using longitudinal studies in a large sample in order to prove whether psychological state of OLP patients could influence onset or progression of the lesions. Moreover population differences regarding the applicability of Holmes and Rahe stress scale also has to be studied by including more objective parameters for stress analysis.

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