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Role of habit behaviours in severity of Oral lichen planus, Oral submucous fibrosis and Leukoplakia: A cross sectional study

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Abstract

Background: Smoking, drinking and chewing tobacco product, common habits in India have been positively associated with oral lesions such as oral submucous fibrosis (OSMF), Leukoplakia, and oral lichen planus (OLP).
Materials and methods: A total of 160 patients of both genders with age above 35-60 year were divided into four groups of Leukoplakia, OSMF, OLP and control group each. Detailed case history, habit history, habit score was recorded.
Results: In this study it was found that OSMF patients with combined habit of smoking tobacco with quid usage patterns, Leukoplakia patients with smoking(beedi) and OLP patients with combined tobacco usage habits and quid usage habits showed presence of advance stages of disease.
Conclusion: This study emphasised that deleterious habits as not only a predisposing factor in the occurrence but plays crucial role in progression to severe form of OSMF and Leukoplakia.

Keywords: Betel quid, areca nut, oral lesions, oral submucous fibrosis

1.Introduction

Stress in the course of time may trigger the people to fall prey to deleterious habits such as gutkha, tobacco and betel nut chewing, pan chewing, smoking etc which leads to potentially malignant disorders such as Oral lichen planus (OLP), Oral submucous fibrosis (OSMF) and Leukoplakia. (1) However, very few studies have been conducted for its relation with stress which is still unclear.

Thus, the aim of the study was to evaluate the corelation between various habit behaviours in severity of Oral lichen planus (OLP), Oral submucous fibrosis (OSMF) and Leukoplakia patients.

2.Materials and methods

Study design: This was a cross sectional study to assess the role of habit behaviours in severity of Oral lichen planus, Oral submucous fibrosis and Leukoplakia. The present study was conducted among 160 patients of both genders with age above 35-60 years, who reported in the daily outpatient department of the hospital. The selected patients were divided into four groups i.e., Leukoplakia, OSMF, OLP and Healthy age- and sex-matched controls without oral deleterious habits of 40 patients each.
Participants: The 160 patients both genders within age range of 35-60 years were evaluated clinically diagnosed based upon clinically criteria by WHO 2005 criteria for Leukoplakia, OSMF, Oral Lichen planus and graded according to predetermined criteria such as for Oral Leukoplakia (Van der Waal et al, 2000), for OSMF (J. N. Khanna, N.N. Andrade, 1995), for oral lichen planus (Malhotra et al, 2008).(2,3) Also incisional biopsy of the clinically diagnosed lesions was done and sent for histopathological evaluation.
Data collection: Detailed case history was recorded for psychological assessment. Also, the Habit usage pattern and Habit index of the patients were recorded as smoking tobacco, smokeless tobacco, smoking tobacco smokeless tobacco, smoking tobacco + quid usage, quid usage. (4)
Data analysis: To assess the variables, the student t tests and Chi-square test were used. P values of less than 0.05 were regarded as significant.

3. Results and Discussion

Out of a total of 160 patients only 20 patients out of 40 OLP patients had habits whereas all the OSMF patients (40) and Leucoplakia patients (40) had habits. Maximum patients with leucoplakia (12) had habit with smoking form of tobacco whereas maximum patients with OSMF (12) had combined habit of smoking tobacco and quid usage and maximum OLP (6) had quid usage habit. (Table 1)
OSMF patients with combined habit of smoking tobacco with quid usage patterns, Leukoplakia patients with smoking(beedi) and OLP patients with combined tobacco usage habits and quid usage habits showed presence of advance stages of disease. (Table 1)

TABLE 1 - Distribution of study population according to Habit patterns

S.no	TYPE OF HABIT	OSMF	OLP	LEUKOPLAKIA
1.	SMOKING TOBACCO	4	2	12
2.	SMOKELESS TOBACCO	6	4	7
3.	SMOKING TOBACCO + SMOKELESS TOBACCO	7	5	10
4.	SMOKING TOBACCO +QUID USAGE	12	3	7
5.	QUID USAGE	11	6	4
	TOTAL	40	20	40

A habit score of (0-40) was observed in maximum patients of OSMF (9), Leucoplakia (8) and OLP (6). Also, maximum habit score of (161-200) was observed in three patients of OSMF and Leukoplakia equally and in one patient of OLP. Maximum advanced cases of OSMF (2) had highest habit score of 161-200 whereas maximum advanced cases of Leukoplakia (2) had a habit score between (41-80) suggesting that low habit index can lead to advanced stages of Leukoplakia much earlier. (Table 2)

TABLE 2- Association between the Severity of the lesions and Habit index

S.no	Habit Index	OSMF stage				OLP stage			LEUKOPLAKIA stage			
		I	II	III	IV	I	II	III	I	II	III	IV
1.	0-40	9	4	2	0	6	2	0	8	3	3	0
2.	41-80	8	3	1	0	5	2	0	5	2	2	2
3.	81-120	2	2	1	0	1	1	0	3	2	1	0
4.	121-160	1	1	2	1	2	0	0	2	2	1	1
5.	161-200	0	0	1	2	0	0	1	0	0	2	1
	Total	40				20			40			

Torwane NA et al. in 2014 conducted a study for identifying the mucosal lesions among psychiatric jail patients in Bhopal. He found that out of 77 per cent of sample subjects, 87.7% of psychiatric patients and 66.4% of non-psychiatric patients, had a habit of tobacco consumption (smokeless or smoking) with Leukoplakia and oral submucous fibrosis as the most common oral mucosal lesions. (5)
A study by Saraswathi TR et al in 2006 had similar results where Smoking and chewing were significant predictors of Leukoplakia in this population. OSMF was the most prevalent lesion among those who chewed pan masala or gutkha or betel quid with or without tobacco. (6)
Similarly, findings from the present study are similar to that of study by Hashibe M et al in 2000 with regard to chewing and smoking tobacco habit being significant predictors of Leukoplakia. (7) Canals J et al in 1997 in a study revealed that high stress and elevated daily consumption of cigarettes were significantly associated with salivary cortisol levels. (8)
Also, a study by Morris MC in 2016 indicated that different mechanisms may be involved at different levels of nicotine dependence severity. Recent nicotine use and lower dependence severity may be associated with increased activation of the stress response systems. In contrast, more severe levels of dependence may downregulate stress response systems. (9) These findings are consistent with the study of Stein RJ in 2008 suggesting that tobacco is not only an ineffective stress-reducing strategy, it also likely perpetuates a stress response in users. (10)

Conclusion

In summary, it has been determined that chewing and smoking tobacco were major predictors of Leukoplakia in this population. Among those who consumed betel quid, gutkha with or without tobacco, OSMF was the most common lesion. Increased habit score was found to be strongly correlated with advanced stages of OSMF, OLP and Leukoplakia. Thus, it can be hypothesized that deleterious habits don't work as a stress-reduction tactic but can be a contributing factor to increased stress and advanced stages of the lesions.

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