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Assessment of Oral Mucosal Lesions along with Tobacco Habits

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Abstract

Objective: To assess and relate the tobacco habits with oral mucosal lesions, diseases prevailing in patients of Lucknow, India.

Materials and Methods: This study was carried among 600 subjects with 300 subjects having habits and 300 without habits. All the participants were asked to fill a questionnaire regarding the habit details and were examined clinically for the oral changes.

Results: The total prevalence rate of the oral mucosal lesions came out to be 21.16% with more lesions observed among the habituated subjects. The prevalence rate was 40% amongst the habituated subjects. Oral submucous fibrosis was found to be the most prevalent lesion with a prevalence rate of 10.83% and it was found in 28.94% of chewers. Whereas, among smoker's leukokeratosis nicotina palate was the most prevalent.

Conclusion: Prevalence of oral mucosal lesions and other oral conditions prevalence and severity were much higher when compared with non-habituated subjects.

Introduction

Tobacco has many negative health effects. The harmful effects of tobacco products are dose - dependent, that they depend more on abuse than on simple use. The nicotine found in substantial amounts in tobacco products is widely considered to be a powerfully addicting drug, so much so that its addictive processes and potential have been equated with heroin, morphine and cocaine. [1]

Tobacco has harmful effects on general as well as oral health leading to physical and vocational disability of a person. Tobacco is considered the most important factor in the etiology of the squamous cell carcinoma of the lungs.[2]

Additionally it has an important role in the etiology of carcinoma in various mucosal locations. Other pathologic entities associated with tobacco include: heart and arterial diseases, especially atherosclerotic peripheral vascular disease, esophageal and laryngeal cancer, chronic obstructive pulmonary disease, low birth weight, intrauterine growth retardation.[3]

Apart from the ill effects on general health, tobacco has many adverse effects on oral health as well. Many oral pathological conditions like oral submucous fibrosis,leukoplakia, erythroplakia, smoker's palate and many other premalignant and malignant conditions arise on usage of tobacco.[4,5]

Keeping all the aforementioned facts in mind, regarding the enormous use of tobacco among various population and its severe ill effects;the present study was undertaken to evaluate "Tobacco habits and its effects on oral health on Lucknow population " - A Hospital Based Study. This study results should be able to create a program planning for future preventive and treatment programme.

Material and methods:

The present cross-sectional hospital based study was carried out among patients attending Department of Oral Medicine and Radiology of Sardar Patel Postgraduate Institute of Dental And Medical Sciences, Lucknow. The study population had two groups. The first group comprised of people having the tobacco habits (either chewing or smoking) and the second group not consuming tobacco in any form.

The sample size was determined by the following equation:

$$n = z^2 \{p\ (1-p)\} / e^2$$

where, n= size of sample

z= critical value at a specified level of confidence

p= sample proportion

e= difference between sample proportion and population

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proportion.

The calculation of sample size was performed to seek there results at 95% confidence level for which the value of z = 1.96. The allowable error taken has been 0.05, i.e. e = 0.05.
Thus the size of sample comes out to be 650. Initially 650 OPD screamed for the eligibility out of which 600 patients were screamed for the study following strict inclusion and exclusion criteria.

Inclusion Criteria:

1. Individuals aged 15 years and above attending Outpatient Department of Sardar Patel Post Graduate Institute of Dental and Medical Sciences.
2. The individuals should be having the habit for atleast 3 years in the group 1.
3. Individuals of both genders not having the tobacco habit were examined in group 2.

Exclusion Criteria:

Individuals below 15 years. Ethical clearance was obtained from institutional review board and the informed consent from each individual was taken before examination. Along with patient's demographic details, information regarding the type of habit, duration, frequency, site of placement, period of contact was recorded. The subjects were then clinically examined using mouth mirrors under artificial illumination. All the changes were diagnosed and categorized in accordance with various international recommendations and criteria.6-9
The obtained data were statistically analysed using SPSS, version 22.0 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistical analysis was carried out and the significance was set at 5% level of significance ($p<0.05$). Chi-square test was used to find if any significance association exists between two attributes on categorical scale and the Z-proportionality test was applied to find the significance difference between two parameters with proportion rates.

Results

In the present study, a total 600 subjects were examined. Out of which 98 were in 15-24 years of age group, 142 were in 25-34 years of age - group, 125 were in 35-44 years of age - group, 108 were in 45-54 years of age - group , 70 were in 55 - 64 years of age - group and 57 were of more than 65 years of age. Maximum age group 35-44 (38.4%) is highest user of tobacco. In the subjects having habit (300) the males were found in significant numbers as compared to females which was highly significant with females virtually nil in few groups (Smoking tobacco only and both smoking and chewing tobacco).
Out of 600 subjects examined 412 were males (44.6%) and 188 were females (33.33%). 83 subjects examined were illiterate ; 60 had their education up till primary school , 75 till middle school, 110 till high school, 111 of them had their education up till intermediate, 67 were graduates, 38 were post graduates, 86 were professionals. More of the subjects having habit (83) were illiterate when compared with subjects having no habit (25) and similarly; more of the subjects having no habit (75) were professionals than having habit (11) which was highly significant. Out of 600 subjects examined 55 were unemployed, 61 were unskilled workers, 99 were semi - skilled workers, 93 were skilled workers, 77 were clerical, farmer or shop - owners, 155 were semiprofessionals, 60 were professionals. It was observed from the table that unemployed subjects were habituated more (34) when compared with professionals (26) marking the difference highly significant.
Table 1 shows the distribution of smokers examined according to the type of smoking. 47.12% of the total smokers used cigarette, 42.52% beedi and 10.34% some other forms of smoking or combination of cigarette or beedi. Out of 300 subjects who had the habit of chewing tobacco, 46.09% chewed tobacco, 8.64% used khaini, 5.76% were pan – chewers and 39.50% used areca - nut, tobacco and lime. None of them had used tobacco in the form of snuff (table 2). 12.75% of chewers and 21.83% of smokers had used tobacco in the measures of 1-2 units day, 23.86% of

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chewers and 26.43% of smokers 3-5 units / day, 26.74% of chewers and 12.64% had consumed tobacco in the measures of 6-10 units/day, 27.98% of chewers and 12.64% of smokers had consumed tobacco > 10 units / day. It was seen that there were more number of habituated smokers and chewers than occasional smokers or chewers; which was statistically significant at p <0.001 (Table 3).

Table 1: Distribution of subjects based on type of smoking

	n	%(%)
Cigarette	41	47.12
Cigar	0	0
Beedi	37	42.52
Chutta	0	0
Pipe	0	0
Other	9	10.34

Table 2: Distribution of subjects based on type of chewing habit

	n	%
Tobacco	112	46.09
Khaini	21	8.64
Snuff	0	0
Paan Chewer	14	5.76
Areca Nut, Tobacco and Lime	96	39.50
Others	0	0
Total	243	100

Table 3: Prevalence of smoking and chewing habit according to frequency of use.

	Chewer		Smoker	
	n	%	n	%
1-2 units / day	31	12.75	19	21.83
3-5 units / day	58	23.86	23	26.43
6-10 units / day	65	26.74	11	12.64
>10 units / day	68	27.98	11	12.64
Once a week	9	3.70	6	6.89
Less than once a week	4	1.64	5	5.74
More than once a week	8	3.29	12	13.72
Total	243	100	87	100

11.11% of chewers and 36.98% of smokers had their habits since 3-10 years, 46.91% of chewers and 29.88% of smokers had got habituated for 11-20 years and 41.97% of chewers and 33.33% of smokers had their habit for more than 20 years. 89.03% of chewers and 63.43% of smokers were habituated for more than 10 years, which was statistically significant (Table 4). 22.2% of them placed tobacco in the left side of buccal vestibule, 25.51% in right side of buccal vestibule, 13.16% both sides of buccal vestibule, 27.98% in the lower labial sulcus and 11.11% placed tobacco at some other sites of oral cavity (Table 5).

Table 4: Prevalence of smoking and chewing habits according to duration of use

	Chewer		Smoker	
	n	%	N	%

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3-10 years	27	11.11	32	36.78
11-20 years	114	46.91	26	29.88
more than 20 years	102	41.97	29	33.33
Total	243	100	87	100

Table 5: Distribution of subjects according to placement of tobacco in the mouth

	N	%
Left Side of Buccal Vestibule	54	22.22
Right Side of Buccal Vestibule	62	25.51
Both Sides of Buccal Vestibule	32	13.16
Lower Labial Sulcus	68	27.98
Others	27	11.11
Total	243	100

Table 6 shows the distribution of subjects examined according to the prevalence of oral mucosal lesions present. The total prevalence rate of the oral mucosal lesions came out to be 21.16% with more lesions observed among the habituated subjects. The prevalence rate was 40% amongst the habituated subjects. Oral submucous fibrosis was found to be the most prevalent lesion with a prevalence rate of 10.83% and it was found in 28.94% of chewers. Whereas, among smoker's leukokeratosis nicotina palate was the most prevalent.

OSMF, the most prevalent oral mucosal lesion was commonly found in buccal mucosa, hard and/or soft palate, tongue and floor of mouth in order of decreasing predilection (Table 7). Table 8 shows the association of oral mucosal lesions with the habits among the subjects examined. The habituated subjects were having 25 times more chances of having oral mucosal lesions when compared with the non-habituated subjects.

Table 6: Distribution for subjects according to oral mucosal lesions

Oral mucosal lesions	No Habit		Chewing Tobacco Only		Smoking Tobacco Only		Both Smoking and Chewing Tobacco		Total	
	n	% Out of 300	N	% Out of 213	n	% Out of 57	N	% Out of 30	n	% Out of 600
Carcinoma	0	0	6	2.81	0	0	0	0	6	1
Leukoplakia	0	0	10	4.69	4	7.01	2	6.6667	16	2.66
Erythroplakia	0	0	1	0.46	1	1.75	0	0	2	0.33
Lichen planus	3	1	1	0.46	0	0	0	0	4	0.67
Submucous Fibrosis	0	0	62	29.10	0	0	3	10	65	10.83
Candidiasis	5	1.66	2	0.93	1	1.75	1	3.33	9	1.5
Leukokeratosis nicotina palatine	0	0	0	0	11	19.29	2	6.66	13	2.166
Herpetic gingivo-stomatitis	0	0	0	0	0	0	0	0	0	0
Acute necrotising gingivitis	0	0	0	0	0	0	0	0	0	0
Cancrum oris	0	0	0	0	0	0	0	0	0	0

Recurrent Apthae	0	0	7	3.28	6	10.52	2	6.66	15	2.5
Combinations (OSMF + Leukoplakia)	0	0	1	0.46	0	0	2	6.66	3	0.5
Total	8	2.66	90	42.25	23	40.35	12	40	133	22.16
	0	0	6	2.81	0	0	0	0	6	1

Table 7: Distribution of oral mucosal lesions according to sites in the oral Cavity

Carcinoma				3		3		
Leukoplakia	3			13				
Erythroplakia	1			1				
Lichen planus				4				
Submucous Fibrosis				35	7	10	13	
Candidiasis					9			
Leukokeratosis nicotina palatine							13	
Herpetic gingivostomatitis								
Acute necrotising gingivitis								
Cancrum oris								
Recurrent Apthae				09		06		
Combinations (OSMF +			1	1		1		
Total	4		1	66	16	20	26	

Table 8: Association of Oral Mucosal lesions with habits present

	No Habit	Habit Present	Total
Oral Lesion Present	125	175	300
Oral Lesion Absent	08	292	300
Total	133	467	

Discussion

The prevalence rate of oral mucosal lesions in this study came to be 40%. This higher prevalence rate is contrary to many studies done by Taiyeb Ali T.B et al,10 Zain Rosnah Binti et al,11 Shulman,12 Dunder Nesrin and Illhar Kal Betul.13 This higher prevalence rate of oral mucosal lesions could be due to an increased incidence of chewing habits in this part of the country and also as it was a hospital based study only patients prevailing with the oral
mucosal lesions came to the hospital. It was inferred from the study that majority of the habituated subjects had a poor oral hygiene status as compared to the non - habituated subjects. This finding can be supported by various studies done by Inaki Masahide et al,14 Rooban T et al,15 and Prebar H and Kant T.16

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Also it was seen that the older age group people had a higher prevalence of oral mucosal lesions and periodontal diseases. This could be due to cumulative effect, decreased immunity and longevity of teeth in mouth. Also quantity of tobacco use increased the prevalence and severity of the disease.This finding is in comparison with the study done by Najith Amarsena et al.37.

Certain points should be taken into consideration when interpreting the results of this study. At times there was difficulty in distinguishing the oral mucosal lesions. Though the oral mucosal lesions were diagnosed according to the criterion given in "Guide to Epidemiology and Diagnosis of Oral Diseases and Conditions, World Health Oragnization, 1980 "with an effort to give maximum fool proof diagnosis certain white lesions like leukoplakia and lichen planus at times were difficult to distinguish as no biopsy was done in the study. At those times the opinion of the experts of Oral Medicine and Radiology Department were taken. Biopsy was not undertaken in the study due to its non-feasibility. Apart from this, another constraint was the inability to generalize our findings to the Lucknow population. Our study group was a convenient sample and was not randomized. There was sampling bias in the study. A comparison of our data with recent studies was therefore not always possible because of differences in methodology. Also since the information regarding the habits was gathered through a questionnaire, there could be some kind of information bias. In this study, detailed information could not be gathered on other predictors of oral diseases such as nutritional status, lifestyles etc; a more detailed and case control study is required to better understand the oral diseases and habits association in this population. The role of many confounding factors cannot be prevented in the study. Age, alcohol, gender, area of residence, amount of tobacco used, alcohol consumption, presence of systemic diseases, all had attributed to the confounding in the study. The present study was done at its best to exhibit the adverse effects on oral health. Since, it was a cross sectional study, only an association between tobacco habits and oral health could be shown. A longitudinal study will be required to determine tobacco as a risk factor for the development of certain oral diseases in particular. But, since an association was established between tobacco and oral health and a high prevalence rate among the people of Lucknow population was seen it is an indication of refraining the Lucknow population from tobacco habits in order to maintain better general health including a better dental health.

Conclusion

In the present study, it was observed that prevalence of oral mucosal lesions and other oral conditions prevalence and severity were much higher when compared with non-habituated subjects. Hence, it becomes necessary to impart knowledge to them in order to bring in awareness regarding the harmful effects of tobacco and discourage them from the existing wrong habits.

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