

The frequency of oral mucosal lesions associated with habit of chewing/smoking tobacco and areca nut chewing: A Cross sectional uni center evaluation study at rural Kanpur.

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Abstract

Background: To determine the prevalence of different oral habits, habit related oral habits in India have been positively associated with oral lesions. No study has been conducted in this part of Kanpur regarding the prevalence of oral lesions in relation to habits.

Methods: A hospital based cross-sectional study was carried out at Rama Dental College hospital and research centre. Kanpur Already existing data of two thousand and seventeen consecutive patients from sub-urban areas of Chennai, who attended the outpatient department, at Rama Dental College, for dental complaints during a period of three months in 2004, who underwent oral examination and interviewer based questionnaire was used.

Results: Oral soft tissue lesions were found in 4.1% of the study subjects. The prevalence of leukoplakia, OSF and oral lichen planus was 0.59%, 0.55%, and 0.15% respectively. The prevalence of smoking, drinking alcoholic beverages and chewing was 15.02%, 8.78% and 6.99% respectively. Smoking and chewing were significant predictors of leukoplakia in this population.

Conclusion: The prevalence of leukoplakia, OSF and oral lichen planus in our study population is similar to those found in other populations. The prevalence of consumption of alcoholic beverages in our study population was higher when compared to the Indian National Sample Survey study. However the prevalence of smoking and chewing was found to be lower. Smokers were more likely to develop smoker's melanosis compared to other lesions. Among those who consumed alcoholic beverages alone, the prevalence of leukoplakia was higher compared to other lesions. OSF was the most prevalent lesion among those who chewed panmasala or gutkha or betel quid with or without tobacco.

Keywords: Betel quid, areca nut, oral submucous fibrosis, oral lichen planus, leukoplakia,

Introduction

Chewing, smoking and consumption of alcoholic beverages have become common social habits in India. According to the study conducted by Neufeld and his coworkers, using National Sample Survey (NSS) which is a representative sample of India, conducted in 1995-96, constituting 4,71,143 people 10 years and older, the prevalence of regular use of alcohol is 4.5%, smoking tobacco is 16.2%, and chewing tobacco is 14%.¹ The prevalence of these habits was found to be more among men when compared to women. Also, the prevalence was higher among the rural population and those with no formal education.^[1] Smoking, drinking, and chewing have been positively associated with oral lesions such as oral submucous fibrosis (OSF), leukoplakia, and oral lichen planus, which has the potential for malignant transformation²⁻⁹ The prevalence of OSF in India varies between 0.03% and 3.2% according to various studies conducted here^{7,10-14}. Also, higher occurrence of leukoplakia and cancer are observed in OSF patients and it is believed to be an important risk factor for oral cancer among youths^{15,16} Prevalence of oral leukoplakia in India varies from 0.2%-5.2%^{7,10,12,13}. According to an Indian study at four urban centers, the prevalence of oral lichen planus varies between 0.02%-0.4%^{10,14,17} In yet another door-to-door survey of 7639 Indian villagers, the prevalence varies from 0.1%-1.5%¹⁸. However, no study has been conducted in Kanpur in this regard to our knowledge. We wanted to know the scenario of oral lesion's relation to habits in this part of the state. Therefore, a pilot hospital based cross-sectional study was carried out using already existing data collected during a period of three months at Rama Dental College hospital and research centre.

Materials and methods

Two thousand and seventeen consecutive patients from sub-urban and rural areas near Kanpur, who attended the outpatient department, at Rama Dental College, for dental complaints during a period of three months from 16th of August to December 2004 formed our study group. Trained dental surgeons collected the data using a combination of clinical oral examination and standardized questionnaire. Information on habits and other characteristics of the study participants were acquired using the standardized, interviewer based questionnaire.

Statistical analyses

Prevalence of oral lesions and habits were estimated using STATA statistical software version 7.0 (STATA Corporation 2001). Logistic regression was used to estimate the effects of different variables on oral lesions. Univariate analysis was done to find the effect of each variable on the prevalence of leukoplakia among the study subjects.

Results**Profile of the study subjects**

Table 1 shows the distribution of study subjects by basic characteristics. There were more males (63.75%) in the study population than females (36.25%). 17.15% of the study participants were in the age group of 13 to 20 years, 38.13% were in the age group of 21 to 30 years, 21.47% were in the age group of 31 to 40 years, and the remaining 23.25% were in the age group of 41 to 84 years. About 28.54% of the participants were either degree or diploma holders and remaining participants have had only school education or were illiterates. More than 85% of the study subjects come from families with monthly income between Rs 5,000 and Rs 10,000 per month, whereas less than 3% belonged to families with income less than Rs 5,000 per month.

Prevalence of habits

The overall prevalence of smoking, drinking alcoholic beverages and chewing were 15.02%, 8.78% and 6.99% respectively. The prevalence of smoking was higher among men (23.25%) when compared to women (0.55%). Also, the prevalence of smoking is higher among the age group of 20 to 50, highest being in the age group of 20 to 31 (17.3%) and 40 to 51 (17.3%). More than 7 out of 10 smokers use unfiltered cigarettes, as compared to the other types namely filtered cigarette, cigar, and beedi. In this population, alcohol consumption was more common among men (13.37%) when compared to women (0.55%), with the prevalence being highest (11.44%) in the age group of 21 to 30. The use of beer, brandy and whisky was more prevalent compared to other alcoholic beverages consumed in this study group, namely arrack, wine, vodka, and rum.

The chewing habit was more prevalent in men (8.55%) as compared to women (4.25%), with highest being in the age group of 51-60. In women, the chewing habit was more prevalent

when compared to the other two habits; wherein, in men it was the smoking habit that was more prevalent. The study participants were more likely to chew pan masala (commercially available processed areca nut product without tobacco) or gutkha (commercially available processed areca nut product without tobacco) (70%) as compared to other products namely betel quid, betel leaf with areca nut and lime, unprocessed and processed areca nut alone .

Prevalence of lesions Oral soft tissue lesions were found in 4.1% of the study subjects. In this study, smoker's melanosis was found to be the most common soft tissue lesion with the prevalence being 1.14%. Stomatitis nicotinopalatini (0.89%) and leukoplakia (0.59%) were the second and third most common lesions. Table 2 shows that the prevalence of all lesions is more common in men when compared to women, but for chewer's mucosa. Among men, smoker's melanosis and stomatitis nicotinopalatini were more prevalent compared to other soft tissue lesions, whereas among women leukoplakia and OSF were more prevalent. Majority of the oral soft tissue lesions were found among people aged from 41 to 60 years.

Prevalence of lesions in relation to habits

Study subjects who smoked had much higher prevalence of soft tissue lesions compared to those who did not. Same was the case among those who consumed alcoholic beverages and chewers. Smokers were more likely to develop smoker's melanosis compared to other lesions. Among those who consumed alcoholic beverages alone, the prevalence of leukoplakia was higher compared to other lesions. OSF was the most prevalent lesion among those who chewed panmasala or gutkha or betel quid with or without tobacco. Effect (Univariate) of predictor variables on prevalence of leukoplakia

Table 3 shows the effect of different predictor variables on the prevalence of leukoplakia among the study subjects. The odds of having leukoplakia is 6 times higher for those who smoke [OR=6.82; 95% CI, (5.63, 8.01)] as compared to those who do not. The odds of suffering from leukoplakia is about 5 times higher among those who chew as compared to those who do not [OR= 5.08; 95% CI, (3.75, 6.41)]. The consumption of alcoholic beverages alone is not significantly associated with the prevalence of leukoplakia i.e., prevalence of leukoplakia did not differ between those who consumed alcoholic beverages and those who did not.

Table 1: Variable definitions and distribution of study subjects by basic characteristics

characteristics	Male(%)	Female(%)	Total
Age group			
13yrs-20yrs	17.34	16.85	17.15
21yrs-30yrs	40.36	34.25	38.13
31yrs-40yrs	19.44	25.07	21.47
41yrs-50yrs	10.81	13.42	11.75
51yrs-60yrs	8.32	8.36	8.33
61yrs-70yrs	2.95	1.51	2.43
71yrs-84yrs	0.78	0.55	0.74

The number of study participants varies slightly for individual variables depending on the number of missing values.

Table 2: Prevalence of soft tissue lesions by gender

Lesions	Prevalence in men(%)	Prevalence in women(%)	General prevalence (%)
Smoker’s melanosis	1.63	0.27	1.14
Stomatitis nicotina palatine	1.24	0.27	0.89
Leukoedema	0.39	0	0.25
Chewer’s mucositis	0.23	0.27	0.25
Oral submucous fibrosis	0.62	0.41	0.55
Median rhomboid glossitis	0.38	0	0.25
Lichen planus	0.23	0	0.15
candidiasis	0.07	0	0.05
leukoplakia	0.7	0.41	0.59

Table 3: Effects of different predictor variables on the prevalence of leukoplakia

characteristics	Odds ratio	95% confidence interval
chewing		
Non chewer	1.0*	
chewer	5.08	(3.75,6.41)
smoking		
Non smoker	1.0*	
smoker	6.82	(5.63, 8.01)
Alcohol drinking		
Non alcohol drinker	1.0*	
Alcohol drinker	2.33	(0.79, 2.33)

Discussion

Cross-sectional studies are important in estimating the prevalence of a disease in the population and identifying the high-risk sub population. In this sample the prevalence of oral lesions was 4.1%, with the prevalence being greater for males than females. The prevalence of leukoplakia (0.59%), OSF (0.55%) and oral lichen planus (0.15%) in our study population is similar to those found in other previous studies conducted in India.^{7,10,12,13, 15,17,18}

The prevalence of alcohol consumption (8.78%) in our study population was higher when compared to the results reported by Neufeld and his coworkers using the Indian National Sample Survey sampl.¹ However the prevalence of smoking (15.02%) and chewing (6.99%) was found to be lower. Smoking, and chewing were significant predictors of leukoplakia in this population. However the association between alcohol consumption and presence of leukoplakia was not statistically significant.

In the present study, females were more likely to chew when compared to the other two habits (this goes with the finding that chewer's mucosa is the most prevalent soft tissue lesion among them). Also, the study shows that smoking is more prevalent in men when compared to the other two habits. Findings from the present study are similar to that of Hashibe et al¹⁹ with regard to chewing and smoking habit being significant predictors of leukoplakia. However consumption of alcoholic beverages (any amount and all types mentioned in Graph

3) did not prove to be a significant predictor as found in the studies by Hashibe et al and Gupta.^{19,20}.

Data was collected as a chair side procedure, which involved oral examination and questionnaire administration. Since the information on the habits was gathered through questionnaire, there could be information bias, but this could only bias our results towards the null. In this study detailed information could not be gathered on other predictors of oral lesions such as nutritional status and BMI (Body Mass Index); a more detailed and case control study is required to better understand the oral lesions and habits association in this population.

The findings from this study can be used to design case control or cohort studies to further understand the relation between habits and oral lesions. Studies of this nature could potentially help clinicians in identifying high-risk population and which would be most beneficial for providing better oral hygiene programs. Programs to improve oral health should be conducted regularly to promote oral health care in the population.

Conclusion

This study enlightens us on the various consequences of oral habits and its associated lesions. We hope a national level study is undertaken at future data to know the overall prevalence of habits and its associated oral lesions.

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