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ORIGINAL ARTICLE

RELATION OF ORAL LESIONS AND DELETERIOUS HABITS: A CROSS-SECTIONAL STUDY IN THE STATE OF RAJASTHAN

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ABSTRACT:

Introduction: Tobacco chewing, cigarette smoking and consumption of alcoholic beverages have become the most common social habits across India. Based on a study performed by *Neufeld* and his coworkers in 1995 - 96, using National Sample Survey (NSS) which is a representative sample of India, 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 smokeless form of tobacco is 14%. A state of tobacco prevailed as epidemic consisting a larger population of tobacco users emerging day by day is seen in today's Universe. In India, there are 240 million tobacco users (195 million men and 45 million women), contributing of almost one-fifth of the world's tobacco consuming population. One of the largest developing nations in the world is undeniably India: with a population nearing 1.5 billion people, India already climbs up a large proportion of the world's disease burden and additional information on the prevalence of tobacco and alcohol use has become a nationwide importance. Smoking, drinking, and chewing have been positively attributed with oral lesions such as oral submucous fibrosis (OSF), leukoplakia, and oral lichen planus, which has the potential for malignant transformation. The prevalence of OSF in India varies in the range between 0.03% and 3.2% according to various studies conducted. Therefore, a hospital based cross-sectional study was carried out using already existing data available and collected during a period of five months at the Department of Dentistry, India. **Materials and Methodology:** Seven thousand (7000) consecutive patients from sub-urban and rural areas who attended the outpatient department, for dental complaints during a period of three months from August to October 2019 formed our study group. Trained dentists collected the data using a combination of clinical oral examination and standardized questionnaire. Suitable information on the habits and other characteristics of the study participants were acquired using the standardized, interviewer-based questionnaire. The data was recorded through face-to-face interviews using a self-prepared questionnaire which includes questions regarding socio-demographic factors, history of alcohol, smoking and other oral habits like betel quid, tobacco chewing. All the study participants were informed about the study and an informed consent was obtained priorly. Then they were interviewed for their adverse habits and examined by the same researcher for the presence of any oral lesions. Then the clinical examination was carried out and relevant findings were recorded. IBM SPSS. Statistics Windows, Version 20.0. (Armonk, NY: IBM Corp) was used for statistical analysis. 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:** In the present study, out of total study sample of 7000 subjects; 4905 (70%) were males and 2095 (30%) were females. Age range of the subjects was between 15 years to 60+ years old (Table 1). The overall prevalence of oro-muosal lesions was found to be 8% among the study population. It was found that out of total 7000 subjects; 52.5% (3567) subjects had one or the other deleterious habits; out of which 72% (2646) subjects were males and 28% (1029) were females. Majority of the subjects suffered from smoker's palate (33.89%) followed by oral lichen planus (40%) and leukoplakia (40%); rests oro-mucosal lesions found among the subjects were lichenoid reactions, chemical burns, erythroplakia, OSMF and others. Subjects were indulged in various habits such as cigarette smoking (56.46%), hukka smoking (26.80%), smokeless tobacco (0.59%), supari (0.68%), gutka (0.76%), beedi smoking (14.69%) as tabulated in Table – 2. **Conclusion:** It has been concluded that the prevalence of oro-mucosal lesions in Rajasthan was 8% which may be due to lack of awareness or ignorance for the oral health issues. The lesions were more common those who were practicing certain deleterious habits like cigarette smoking, beedi, hukka smoking and use of smokeless tobacco, gutka and supari. The oral mucosal lesions were present more in males than females. Therefore, screening and early detection of such oral lesions in those population who are at risks are mandatory to decrease morbidity and mortality associated with oral cancer.

Keywords: mucosal lesions, white lesions, habits, smoking

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INTRODUCTION

Tobacco chewing, cigarette smoking and consumption of alcoholic beverages have become the most common social habits across India. Based ona study performed by *Neufeld* and his coworkers in 1995 - 96, using National Sample Survey (NSS) which is a representative sample of India,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 smokeless form of tobacco is 14%.[1] A state of tobacco prevailed as epidemic consisting a larger population of tobacco users emerging day by day is seen in today's Universe. In India, there are 240 million tobacco users (195 million men and 45 million women), contributing of almost one-fifth of the world's tobacco consuming population.[2] The

prevalence of these habits was found to be more common among men when compared to women. Also, the prevalence was higher among the rural population and in greater number in those with no formal education.[2]

Though there is a huge concern increasing globally about the increasing risks associated, reportedly less is known about the prevalence of tobacco and alcohol use in many developing countries, when compared with developed nations. One of the largest developing nations in the world is undeniably India: with a population nearing1.5 billion people, India already climbs up a large proportion of the world's disease burden and additional information on the prevalence of tobacco and alcohol use has become a nationwide importance.[3] Smoking, drinking, and chewing have been positively attributed with oral lesions such as oral submucous fibrosis (OSF), leukoplakia, and oral lichen planus, which has the potential for malignant transformation.[4,5] The prevalence of OSF in India varies in the range between 0.03% and 3.2% according to various studies conducted.[6,7,8] 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 young individuals.[9,10] Prevalence of oral leukoplakia in India ranges from 0.2%-5.2%.[6,7]

According to an Indian study at four urban centers, the prevalence of oral lichen planus varies between 0.02%-0.4%.[7,8,10] In yet another door-to-door survey of 7639 Indian villagers, the prevalence varies from 0.1%-1.5%.[10] Therefore, a hospital based cross-sectional study was carried out using already existing data available and collected during a period of five months at the Department of Dentistry, India

MATERIALS AND METHODOLOGY

Seven thousand(7000) consecutive patients from sub-urban and rural areas who attended the outpatient department, for dental complaints during a period of three months from August to October 2019 formed our study group. Trained dentists collected the data using a combination of clinical oral examination and standardized questionnaire. Suitable information on the habits and other characteristics of the study participants were acquired using the standardized, interviewer-based questionnaire. The data was recorded through face-to-face interviews using a self-prepared questionnaire which includes questions regarding socio-demographic factors, history of alcohol, smoking and other oral habits like betel quid, tobacco chewing. All the study participants were informed about the study and an informed consent was obtained priorly. Then they were interviewed for their adverse habits and examined by the same researcher for the presence of any oral lesions. Then the clinical examination was carried out and relevant findings were recorded.

IBM SPSS. Statistics Windows, Version 20.0. (Armonk, NY: IBM Corp) was used for statistical analysis. 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

In the present study, out of total study sample of 7000 subjects; 4905 (70%) were males and 2095 (30%) were females. Age range of the subjects was between 15 years to 60+ years old (Table 1). The overall prevalence of oro-muosal lesions was found to be 8% among the study population. It was found that out of total 7000 subjects; 52.5% (3567) subjects had one or the other deleterious habits; out of which 72% (2646) subjects were males and 28% (1029) were females. Majority of the subjects suffered from smoker's palate (33.89%) followed by oral lichen planus (40%) and leukoplakia (40%); rests oro-mucosal lesions found among the subjects were lichenoid reactions, chemical burns, erythroplakia, OSMF and others. Subjects were indulged in various habits such as cigarette smoking (56.46%), hukka smoking (26.80%), smokeless tobacco (0.59%), supari (0.68%), gutka (0.76%), beedi smoking (14.69%) as tabulated in Table – 2.

Table 1: Distribution of subjects according the age-groups.

Age in years	Frequency of subjects
15 – 25	1892 (27%)
26 – 45	1966 (28%)
46 – 60	1662 (23.8%)
>60	1482 (21.2%)

Table – 2: Distribution of subjects as per habits

Habits	Percentage
Cigarette smoking	56.46%
Hukka smoking	26.80%
Beedi smoking	14.69%
Smokeless tobacco	0.59%
Supari	0.68%
Gutka	0.76

DISCUSSION

Almost all the oro-mucosal lesions could result due to an infection (bacterial, viral, fungal), local trauma and or irritation (traumatic keratosis, chemical burns), systemic disease (metabolic or immunological) or lifestyle related factors like tobacco usage, betel quid, areca nutand/or alcohol. Oral lesions can lead to hinderancein day todayroutine activities becauseof discomfort or pain that impedes mastication, deglutition and speech and producing certain additional symptoms such as halitosis, xerostomia or oral dysesthesia, which may hamper the individual's daily social activities.[12]

The prevalence of these oral lesions in population has been documented in many parts of the world like Argentina[13] , USA, Israel and Cambodia and these were majorly based on clinical evaluation of the lesions.[14-16] In contrast, *Correa* et al and *Dehler* et al performedsome prevalence studies based on the clinicopathological correlation, evaluating the biopsies of the observed lesions.[17,18] The prevalence of these lesions in general population of various countries has been reported 9.7% in Malaysia, 15.5% in Turkey, 25% in Italy and 61.6% in Slovenia.[19-21] These lesions have been found in 15% of Saudi Arabian and 41.2% of Indian dental patients as per the studies carried out.[22,23] Tobacco was introduced in India by the Portuguese nearly 400 years ago and since then it rapidly became a part of socio-cultural milieu in various communities prevailing in India.[24]

India has become the second largest producer and consumer of tobacco next to China. India contributes one-fifth of World's total tobacco consuming population with 240 million tobacco users out of which interestingly one-third of women and two-third of men use tobacco in any of the all the available forms.[25] Smoking, drinking and tobacco chewing have been positively related with oral lesions such as leukoplakia, oral submucous fibrosis and oral lichen planus which have the greatest potential for malignant transformation. Tobacco consumption also remains the most important avoidable risk factor for oral cancer. Tobacco related cancers account for nearly 50% of all cancers in men and 25% in women.[26]

Oral squamous cell carcinoma may occur either de novo or from the precursor lesions that were existing at the site. As a result, prompt intervention at appropriate levels may aid in prevention and better control of tobacco induced lesions. Also, the major risk factors for oral mucosal lesions and its associated symptoms, a wide range of preventive measures could be implemented at primary, secondary or tertiary levels. In the present study, the prevalence of oral mucosal lesions was found to be 8%. The prevalence of oro-mucosal lesions was similar to previous studies done in other parts of India wherein the prevalence of oral mucosal lesions was found to be 8.4%.[27,28] Out of total 295 (8%); 232 (78.6%) oral lesions were found in males and 63 (21.3%) were found in females. This difference may be due to the fact that most of the men are reported to have the habit of cigarette smoking and chewing tobacco and with mixed habits. Smoker's palate is also known as leukokeratosisnicotina palate and is a common reaction of palatal mucosa to smoking. Clinically the lesion appears as a diffuse white patch having central red dots which corresponds to the ducts of minor salivary glands. These lesions are more prevalent in men due to greater usage of tobacco smoke. In the present study; among all the oral mucosal lesions, Smoker's palate was the most prevalent (33.89%); followed by Leukoplakia (13.55%) and oral lichen planus (13.55%). Leukoplakia could be defined as a predominantly white lesion or plaque affecting the oral mucosa that cannot be characterized clinically or histopathologically as any other disease and is not associated with any other physical or chemical agents except tobacco.[29] Leukoplakia is considered as a potentially malignant condition with a malignancy conversion rate ranging from 0.1% to 17.5%.[30] Lichen planus is a mucocutaneous disorder affecting the skin and mucous membrane with increased potential for malignant transformation. The malignant potential of lichen planus has been a subject of intense research with studies showing a greater malignant transformation in the range of 0 to 12.5%.[30,31] In the present study, out of total 8% of subjects having oral lesions; oral submucous fibrosis (OSMF) was found in 10 subjects (3.38%). The signs seen were generalised blanching, presence of fibrotic bands in the oral mucosa and the patients' complained of burning sensation. In the present study; 12.54% of the mucosal lesions comprise of chemical burns among the study participants. This finding may be related to the cigarette smoking being used in a higher percentage (56.46%) of subjects. Burns and keratotic patches are common on the lips at the site of habitual cigarette smoking, particularly where the cigarette or cigar is retained as a stub for quite a lengthy period of time. The lesions that characteristically appear on the surface of the lower and upper lip mucosa at the site at which the cigarette is held. They are characterized by flat or slightly elevated whitish areas with red striations.[32] In the present study erythroplakia was seen in 8% of the subjects. This finding was higher than the previous study in which only 9 cases (0.02%) among 51000 villagers were reported in a study from five states of India. The reason might be the difference in study design, study setting, sample size and the habits associated. Erythroplakia is a rare but it is the severest form of precancerous lesion defined by WHO as "any lesion of the oral mucosa that presents as bright red velvety plaques which cannot be characterized clinically or histopathologically as any other recognizable condition".[34] In the present study cigarette smoking was the most prevalent habit among the study sample accounting for 56.46%; followed by hukka smoking (26.80%) and beedi

smoking (14.69%). This might have been the reason for the presence of high frequency of oral mucosal lesions in the present study; as in the previous study, smoking has been positively associated with oral lesions such as leukoplakia, oral submucous fibrosis and oral lichen planus which have the potential for malignant transformation.[2]

CONCLUSION

It has been concluded that the prevalence of oro-mucosal lesions in Rajasthan was 8% which may be due to lack of awareness or ignorance for the oral health issues. The lesions were more common those who were practicing certain deleterious habitslike cigarette smoking, beedi, hukka smoking and use of smokeless tobacco, gutka and supari. The oral mucosal lesions were present more in males than females. Therefore, screening and early detection of such oral lesions in those population who are at risks are mandatory to decrease morbidity and mortality associated with oral cancer.

REFERENCES

1. Neufeld KJ, Peters DH, Rani M, Bonu S, Bronner RK. Regular use of alcohol and tobacco in India and its association with age, gender, and poverty, Drug Alcohol Depend. 2005; 77(3):283-91.
2. Bhawna G. Burden of smoked and smokeless tobacco consumption in India-results from the Global adult Tobacco Survey India (GATS-India)- 2009-201. Asian Pac J Cancer Prev. 2013;14:3323-9.
3. Peters DH, Yazbeck AS, Sharma RR, Ramana GN, Pritchett LH, Wagstaff A, et al. Better health systems for India's poor: findings, analysis, and options. The World Bank, 2002.
4. Gangadhran P, Paymaster JC. Leukoplakia-An epidemologic study of 1504 cases observed at Tata Memorial Hospital, Bombay, India. Brit J Cancer, 1971; 25:657-68.
5. Pindborg JJ, Murti PR, Bhonsle RB, Gupta PC,Daftary DK, Mehta FS: Oral submucous fibrosis as precancerous condition, Scand J Dent Res, 1984; 92:224-9.
6. Mehta FS, Gupta PC, Daftary DK, Pindborg JJ,Choksi SK: An epidemiological study of oral cancer and precancerous conditions among 101, 761 villagers in Maharashtra, India, Internat J Cancer, 10:134-41, 1972.
7. Pindborg JJ, Chavla TN, Mishra RK, Nagpaul RK, Gupta VK: Frequency of oral carcinoma, leukokeratosis, leukoedema, submucous fibrosis and lichen planus in 10,000 Indians in Lucknow, Uttar Pradesh, India: Report, J Dent Res, 1965, 44:625.
8. Zachariah J, Mathew B, Varma NAR, Iqbal AM, Pindborg JJ: Frequency of oral mucosal lesions among 5000 individuals in Trivandrum, South India. J Ind Dent Assoc, 1966; 38:290-4.
9. Gupta PC, Sinor PN, Bhonsle RB, Pawar VS, Mehta HC: Oral submucous fibrosis in India: A new epidemic? National Med J Ind, 1998; 11:113-16.
10. Gupta PC, Ray CS: Tobacco and youth in the South EastAsian region, Ind J Cancer, 2002; 39:5-34.
11. Pindborg JJ, Kalapesi HK, Kale SA, Singh B, Taleyarkhan BN: Frequency of oral leukoplakia and related conditions among 10,000 Bombayites. Preliminary report, J Ind Dent Assoc, 1965; 37:228-9.
12. Cebeci ARI, Gülşahı A, Kamburoğlu K, et al. Prevalence and distribution of oral mucosal lesions in an adult Turkish population. Med Oral Patol Oral Cir Bucal. 2009;14(6):E272–77.
13. Crivelli MR, Domínguez FV, Adler IL, Keszler A. Frequency and distribution of oral lesions in elderly patients. Rev Asoc Odontol Argent. 1990;78(1):55– 8.
14. Shulman JD, Beach MM, Rivera-Hidalgo F. The prevalence of oral mucosal lesions in U.S. adults: data from the Third National Health and Nutrition Examination Survey, 1988-1994. J Am Dent Assoc. 2004;135(9):1279-86.
15. Fleishman R, Peles DB, Pisanti S. Oral mucosal lesions among elderly in Israel. J Dent Res.1985;64(5):831-6.
16. Ikeda N, Handa Y, Khim SP, Durward C, Axéll T, Mizuno T. Prevalence study of oral mucosal lesions in a selected Cambodian population. Community Dent Oral Epidemiol. 1995;23(1):49-54.
17. Corrêa L, Frigerio ML, Sousa SC, Novelli MD. Oral lesions in elderly population: a biopsy survey using 2250 histopathological records. Gerodontology. 2006;23(1):48-54.
18. Dehler K, Brannon R, Muzyka B. Biopsied oral lesions in a geriatric population. Oral Surg Oral Med Oral Pat. 2003;95(4):417.
19. Zain RB, Ikeda N, Razak IA, Axell T, Majid ZA, Gupta PC, et al. A national epidemiological survey of oral mucosal lesions in Malaysia. Community Dent Oral Epidemiol. 1997;25(5):377-83.
20. Cebeci AR, Gulsahi A, Kamburoglu K, Orhan BK, Oztas B. Preva¬lence and distribution of oral mucosal lesions in an adult Turkish population. Med Oral Patol Oral Cir Bucal. 2009;14(6):E272-7.
21. Al-Mobeeriek A, AlDosari AM. Prevalence of oral lesions among Saudi dental patients. Ann Saudi Med. 2009;29(5):365-8.
22. Kovac-Kovacic M, Skaleric U. The prevalence of oral mucosal lesions in a population in Ljubljana, Slovenia. J Oral Pathol Med. 2000;29(7):331-5.
23. Mathew AL, Pai KM, Sholapurkar AA, Vengal M. The prevalence of oral mucosal lesions in patients visiting a dental school in Southern India. Indian J Dent Res. 2008;19(2):99-103.
24. Kaur J, Jain DC. Tobacco control policies in India: Implementation and challenges. Indian J Public Health. 2011;55:220-7.
25. Chadda R, Sengupta S. Tobacco use by Indian adolescents. Tobacco Induced Diseases. 2003;1(1):8. 19. Murthy NS, Mathew A. Cancer epidemiology, prevention and control. Curr Sci. 2004;86:518-27.
26. Saraswathi TR, Ranganathan K, Shanmugam S, Sowmya R, Narasimhan PD, Gunaseelan R: Prevalence of oral lesions in relation to habits: Crosssectional study in South India. Indian J Dent Res. 2006;17(3):121-5.
27. Patel P, Patel V. Oral mucosal lesions among residence of a town in north Gujarat. National Journal of medical research. 2011;1(1):3-6.
28. Mehrotra R, Thomas S, Nair P, Pandya S, Singh M, Nigam NS, et al. Prevalence of oral soft tissue lesions in Vidisha. BMC Research Notes. 2010 3:23.
29. Axell T, Holmstrup P, Karmer IR, Pindborg JJ, Shear M. International seminar on oral leukoplakia and

associated lesions related to tobacco habits. Comm Dent Oral Epidemiol. 1984;12:145-54.
30. Waal VI, Schepman KP, Meij VEH, Smeele LE. Oral leukoplakia: A clinicopathological review. Oral Oncol. 1997;33:29-301.
31. Gonzalez-Moles MA, Scully C, Gil-Montoya JA. Oral lichen planus: Controversies surrounding malignant transformation. Oral Dis. 2008;14:229- 43.
32. Sharma. Prevalence of oral submucous fibrosis in patients visiting dental college in rural area of jaipur, Rajasthan. JIAOMR. 2012;24(1):1-14.
33. Mirbod SM, Ahing SI. Tobacco-Associated Lesions of the Oral Cavity: Part I. Nonmalignant Lesions. J Can Dent Assoc. 2000;66:252-6.
34. Sridharan G. Epidemiology, control and prevention of tobacco induced oral mucosal lesions in India. Indian J Cancer. 2014;51:80-5