

Prevalence of Oral Mucosal Lesions Among Tobacco Users Visiting Ragas Dental College: A Cross Sectional Study

A. Priyadharshini^{1*} P. Venkatalakshmi Aparna² D.K. Lakshmi Nrusimhan³ B. Niveditha⁴ S.
Kailasam⁵ N. Narmatha⁶

¹PG Student, Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

²Reader, Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

³PG Student, Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

⁴PG Student, Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

⁵Professor and Head, Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

⁶PG Student, Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

ABSTRACT

Background: The oral mucosal lesions were common among the patients with increased frequency and duration of the habits. Males were commonly affected when compared to females. White lesions were more compared to red lesions.

Materials and methods: 500 self-prepared questionnaires were given with questions regarding usage of tobacco and tobacco products, duration of usage, frequency of usage, type of tobacco. Intra oral examination for presence of lesions was done for each and every patient with and without tobacco habits. Using computer software comparison between tobacco habit and red and white lesions were done.

Results: The frequency of chewing tobacco in a day among those patients with habit were once (96), 2 to 5(248) and more than 5 times (156). The duration of the habits among those 500 patients were below 5 years (178), 5 to 10 years (213), 10 to 15 years (37) and above 15 years (72). Among those 500 patients, 264 patients had white lesions, 22 had red lesions, 1 had mixed lesions, 2 had pigmented lesions, 1 patient had white and pigmented lesion and 210 patients had no lesions.

Conclusion: This might provide valuable information in identifying lesions among high-risk populations, planning future oral health studies and implementing preventive measures. All health care professionals should be sensitized and educated for implementing measures for tobacco control and cessation.

Keywords: Smoking tobacco, Smokeless tobacco, Chewers Mucositis, Frictional Keratosis, Leukoplakia, and Submucous Fibrosis.

INTRODUCTION

The oral mucosa serves as a protective barrier against trauma, pathogens, and carcinogenic agents. It can be affected by a wide variety of lesions and conditions, some of which are harmless, while others may have serious complications.^[1] Identification and treatment of these pathologies are an important part of total oral health care. India had 275 million current tobacco

users in the year 2009-2010: majority of them used smokeless tobacco (164 million) and 42 million used both forms of tobacco.^[2] India is one among the fewer countries where prevalence of dual use of smoking and smokeless tobacco is high.^[3] Hence, oral soft tissue examination is crucial, and it should be done in a systematic manner to include all parts of the oral cavity. Chewing tobacco (CT) use is very common in India, contains pieces of areca nut

Received: Nov. 11, 2018; Accepted: Jan. 25, 2019

*Correspondence Dr. A. Priyadharshini.

Department of Oral Medicine and Radiology, Ragas Dental College and Hospital, Uthandi, Chennai, India.

Email: apriya.omdr@gmail.com



Fig 1: Tobacco pouch keratosis.



Fig 2: Smokers palate.



Fig 3: Leukoplakia.

products coated with sweetening and flavoring which are highly addictive.^[4] Tobacco use is inflicting a huge damage on the health status of the patient and creating a huge financial burden on the

government.^[5] Hence the present study is undertaken to assess the prevalence of CT use, associated oral lesions and to correlate the dose-response relationship among this subset of the population .^[6] Persons chewing at least one pouch of tobacco a day since at least 1-year were defined as tobacco chewers. ^[7] Individuals smoking at least one cigarette a day since at least the past 12-months were defined as smokers. ^[8]



Fig 4: Squamous cell carcinoma.

The excessive use of tobacco products has been associated with various lesions in the oral cavity. Tobacco- associated lesions include tooth stains, abrasions, smoker's melanosis, acute necrotizing ulcerative gingivitis and other periodontal conditions, burns and keratotic patches, black hairy tongue, nicotinic stomatitis, palatal erosions, leukoplakia, epithelial dysplasia and squamous-cell carcinoma. A routine intraoral examination by a dental health professional can reveal most of these lesions at an early stage, and early intervention may prevent serious sequelae. Thus, detection of tobacco-associated lesions in conjunction with tobacco-use counselling by dental professionals has become the standard of care .^[9]

MATERIALS AND METHODS

Study design: Cross – sectional study

Study groups: Group I, Group II, Group III

Age group: 15 – 80 years

Sample Size: 500

METHODOLOGY

500 self-prepared questionnaires were given with questions regarding usage of tobacco and tobacco products, duration of usage, frequency of usage, type of tobacco. Intra oral examination for presence of lesions was done for each and every patient with and without tobacco habits. Using computer software comparison between tobacco habit and red and white lesions were done.

In this study a total of 500 incoming patients from Ragas Dental College were included. Each of them was given a self-prepared questionnaire with questions related to tobacco habits, frequency of habit and duration of habit. Patients with habits of smoking, smokeless tobacco usage and combination of both were separated. The relationship between tobacco habit and oral lesions were analyzed with the chi-square test and the results were tabulated.

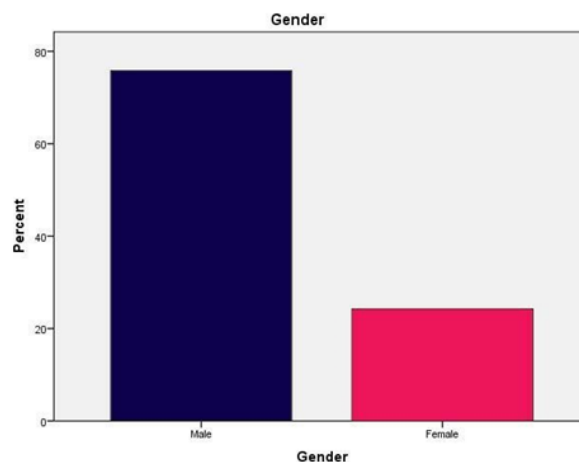
RESULTS

The distribution of gender out of 500 patients were 379 males and 121 females. The age group of these patients were between 21 to 30 years (163), 31 to 40 years (144), 41 to 50 years (104), above 50 years (89). Among the 500 patients 274 had cigarette smoking habit, 17 had beedi smoking habit, 182 had smokeless tobacco habit, and 27 had combination of smoking and smokeless tobacco habits.

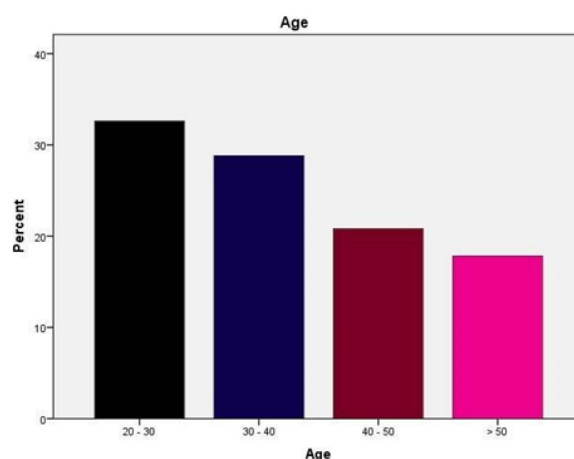
The frequency of chewing tobacco in a day among those patients with habit were once (96), 2 to 5(248) and more than 5 times (156). The duration of the habits among those 500 patients were below 5 years (178), 5 to 10 years (213), 10 to 15 years (37) and above 15 years (72). Among those 500 patients, 264 patients had white lesions, 22 had red lesions, 1 had mixed lesions, 2 had pigmented lesions, 1 patient had white and pigmented lesion and 210 patients had no lesions.

There was a significant proportion of sample showing presence of lesions among the patients who had tobacco habits than the patients who had the habit of both smoking and smokeless tobacco with significant P value 0.012. Male patients were found to have more occurrence than the female patients with P value 0.023. White lesions were more in occurrence than the red lesions among the

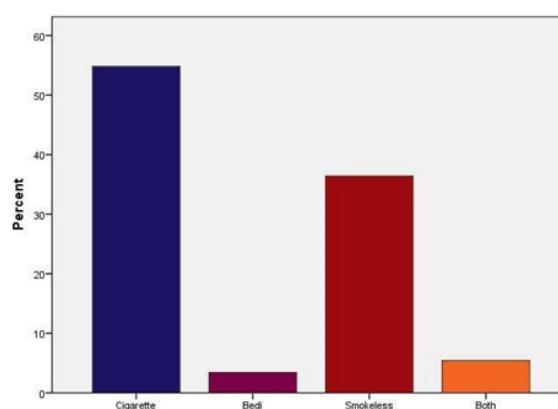
patients with tobacco associated lesions with P value 0.024.



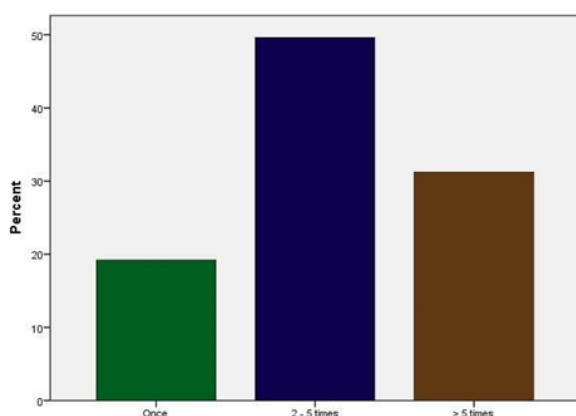
Graph 1: Gender distribution.



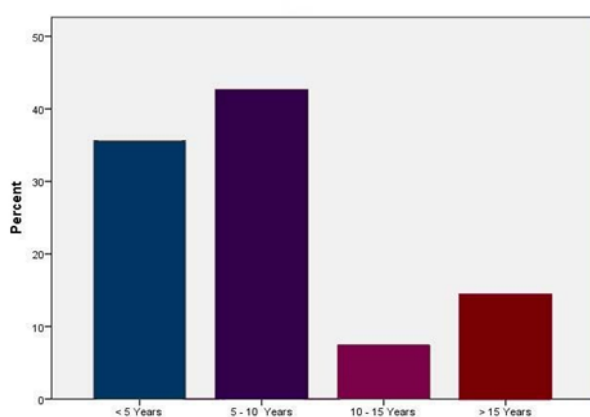
Graph 2: Age distribution.



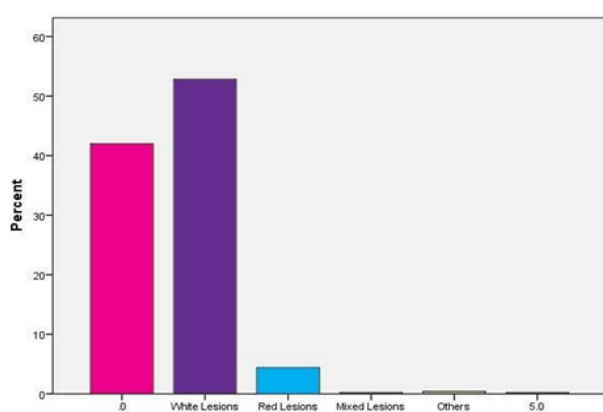
Graph 3: Type of tobacco use.



Graph 4: Frequency of tobacco use.



Graph 5; Duration of tobacco use.



Graph 6: Lesion associated with tobacco use.

DISCUSSION

In 1912, Alder first suggested that inhalation of cigarette smoke might be a cause of lung cancer.

Since then, knowledge about the adverse effects of tobacco has accumulated. The US Surgeon General's report 2004 states that smoking harms almost every organ of the body, causing many diseases and reducing the health of the smokers in general. Even now, as additional research findings become available, more diseases are shown to be linked to tobacco.[10] In India, where smoking by women is still considered a taboo, CT is the preferred choice.[11]

Thousands of compounds are found in both forms of tobacco. Many of these compounds are not only irritants and toxins, they are also carcinogens. The smoking form of tobacco contains over 4000 different chemicals and at least 50 are known carcinogens. Smokeless tobacco contains 28 carcinogens. Tobacco-specific nitrosamines are present in higher concentrations while nicotine content is lower in smokeless tobacco than in the smoking form. [12]

Tobacco smoking affects multiple organ systems resulting in numerous tobacco-related diseases. The well-known health risks of tobacco smoking pertain to diseases of the respiratory tract, such as chronic obstructive pulmonary disease, and cancer, particularly lung cancer and cancers of the larynx and tongue.[13] Both smoking and chewing tobacco produce a number of oral mucosal lesions ranging from melanin pigmentation, wrinkling of the oral mucosa to premalignant and malignant lesions. [14]

Poornima Chandra et al, (2012) [15] in their study stated that three-quarters of the patients with the tobacco habit had oral mucosal lesions. In this study a total of 500 incoming patients from Ragas Dental College were included. Each of them was given a self-prepared questionnaire with questions related to tobacco habits, frequency of habit and duration of habit. Patients with habits of smoking, smokeless tobacco usage and combination of both were separated. The relationship between tobacco habit and oral lesions were analyzed with the chi-square test and the results were tabulated.

The distribution of gender out of 500 patients was 379 males and 121 females. The age group of these patients was between 21 to 30 years (163), 31 to 40 years (144), 41 to 50 years (104), above 50 years (89). Among the 500 patients 274 had cigarette

smoking habit, 17 had beedi smoking habit, 182 had smokeless tobacco habit, and 27 had combination of smoking and smokeless tobacco habits. Pimple et al., (2012) mentioned highest prevalence of OPML(oral premalignant lesions) was found in the age group of 35-45 years.[16]

The frequency of chewing tobacco among those patients with habit was once (96), 2 to 5(248) and more than 5 times (156). The duration of the habits among those 500 patients were below 5 years (178), 5 to 10 years (213), 10 to 15 years (37) and above 15 years (72). Among those 500 patients, 264 patients had white lesions, 22 had red lesions, 1 had mixed lesions, 2 had pigmented lesions, 1 patient had white and pigmented lesion and 210 patients had no lesions.

There was a significant proportion of sample showing presence of lesions among the patients who had tobacco habits than the patients who had the habit of both smoking and smokeless tobacco with significant P value 0.012. Male patients were found to have more occurrence than the female patients with P value 0.023. White lesions were more in occurrence than the red lesions among the patients with tobacco associated lesions with P value 0.024. This is in relevance to the study conducted by Suhail et al, Most frequently encountered white lesions is leukoplakia with a male predominance.[17] The oral mucosal lesions were common among the patients with increased frequency and duration of the habits. Males were commonly affected when compared to females. White lesions were more compared to red lesions.

CONCLUSION

This study presented epidemiological data on oral mucosal lesions associated with the tobacco habit. This might provide valuable information in identifying lesions among high-risk populations, planning future oral health studies and implementing preventive measures. Hence, routine screening of the oral mucosa is essential. The patients, especially the younger population, have to be counselled on a regular basis in order to bring about long-term results with regard to tobacco cessation. The results of this study should serve as the basis for a larger, nation-wide survey of oral lesions. Mass screening with

tobacco cessation protocols ensures early detection and prompt treatment of the oral diseases

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

REFERENCES

1. Langlais RP, Miller CS, Nield-Gehrig JS, Color atlas of Common oral diseases, 4th ed. Lippincott Williams & Wilkins, Illinois; 2009
2. Leticia Ferreira, <https://emedicine.medscape.com/article/1077501-overview>
3. Daftary, D. K., Bhonsle, R. B., Murti, R. B., Pindborg, J. J. & Mehta, F. S.: An oral lichen planus-like lesion in Indian betel-tobacco chewers. Scand. J. Dent. Res. 1980; 88: 244-249.
4. Sardar Z Imam, Haq Nawaz, Yasir J Sepah, Aqueel H Pabaney, Mahwish Ilyas and Shehzad Ghaffar, Use of smokeless tobacco among groups of Pakistani medical students – a cross sectional study, BMC Public Health 2007, 7:231
5. Sylvie Louise Avon, Oral Mucosal Lesions Associated with Use of Quid, Journal of the Canadian Dental Association, April 2004, Vol. 70, No. 4
6. Neville, B.W., Damn, D.D., Allen, C.M. and Bouquot, J.E. (2002) Oral and Maxillofacial pathology. W. B. Saunders, Philadelphia, 513-519.
7. Javed F, Tenenbaum HC, Nogueira-Filho G, Nooh N, O'Bello Correa F, Warnakulasuriya S, *et al.* Periodontal inflammatory conditions among gutka chewers and non-chewers with and without prediabetes. J Periodontol 2013;84:1158-64.
8. Javed F, Näsström K, Benchimol D, Altamash M, Klinge B, Engström PE. Comparison of periodontal and socioeconomic status between subjects with type 2 diabetes mellitus and non-diabetic controls. J Periodontol 2007;78:2112-9.
9. Poornima Chandra, Poornima Govindaraju. Prevalence of oral mucosal lesions among tobacco users. Oral health prev dent 2012;10:149-153.

10.Imam SZ, Nawaz H, Sepah YJ, Pabaney AH, Ilyas M, Ghaffar S. Use of smokeless tobacco

among groups of Pakistani medical students-a cross sectional study. BMC Public Health 2007;7:231.

11. M Rani, S Bonu, P Jha, S N Nguyen, L Jamjoum Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross sectional household survey, Tobacco Control 2003;12:e4 (<http://www.tobaccocontrol.com/cgi/content/full/12/4/e4>)

12. Mehta FS, Hamner JE. Tobacco Related Oral Mucosal Lesions and Conditions in India.

New Delhi: Jaypee Brothers Medical Publishers; 1993.

13. R.P. Young, R. Hopkins and T.E. Eaton , Pharmacological actions of statins: Potential utility in COPD,European respiratory review volume 18 number 114

14.Van Wyk CW. The oral lesion caused by snuff. Med Proc 1965; 11: 531-7.

15.Poornima Chandra, Poornima Govindaraju. Prevalence of oral mucosal lesions among tobacco users. Oral health prev dent 2012;10:149-153.

16. Pimple S, Pednekar M, Majmudar P, et al. An integrated approach to worksite tobacco use prevention and oral cancer screening among factory workers in Mumbai, India. Asian Pac J Cancer Prev. 2012;13:527-32.

17. Suhail latoo, Pushparaja Shetty, Owais Gowhar. Prevalence of Oral Precancerous Lesions Among Population Of Sasihitlu Village, Mukka, Dakshin Kannada District, Karnataka, India. International Journal of Current Research. 2016;08:26421-26423.