International Journal of Medical and Health Research
ISSN: 2454-9142
Received: 27-05-2020; Accepted: 29-05-2020; Published: 16-06-2020
www.medicalsciencejournal.com
Volume 6; Issue 6; 2020; Page No. 114-117

Relation of oral lesions and deleterious habits: A cross-sectional study

Shatakshi Sharma[1*], Keerti Chandail[2], Twinkle Arora[3], Mehak Kaul[4]
[1] MDS (Oral & Maxillofacial Pathology & Microbiology)
[2] MDS (Pedodontics and Preventive Dentistry), Senior Lecturer, ITS-CDSR, Muradnagar, Ghaziabad, Uttar Pradesh, India
[3] MDS (Prosthodontics including Crown and Bridge)
[4] MDS (Oral & Maxillofacial Pathology & Radiology), Ohio State University, Columbus, Ohio
[*] Corresponding Author: Shatakshi Sharma

Abstract
Background: The incidence of oral premalignant and malignant lesions is on the rise due to an increased number of people taking in tobacco and alcohol related habits.
Material and Methods: 1028 patients with tobacco, alcohol and areca nut habits attending our Department of Dentistry formed the study sample. An interviewer-based questionnaire was used to record the habit details. All the patients were then examined clinically for the presence of lesions. Chi square and Fisher exact tests were used to assess the statistical significance of the study parameters.
Results: Males had a higher prevalence and comprised 87.9% of the sample. The commonest habit in this study sample was smoking (39.2%) followed by smokeless tobacco use (28.1%). Out of the 1028 patients with habits 40% had no clinically detectable changes in their mucosa. Of the mucosal changes leukoplakia (14%) was the commonest.
Conclusion: This study provided information about the habit trends in the patients visiting this institution. The study may serve as a useful tool in educating the patients about the deleterious effects of oral tobacco, alcohol and betel exposure.

Keywords: oral lesions, oral habits, tobacco

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].

Despite the growing global interest in the problem, considerably 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 countries in the world is India: with a population exceeding one billion people, India already bears a large proportion of the world's disease burden (over 20% of all disability adjusted life years lost) and additional information on the prevalence of tobacco and alcohol use in this country has both national and global importance [2].

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 transformation [3, 10]. The prevalence of OSF in India varies between 0.03% and 3.2% according to various studies conducted here [8, 11, 15]. 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 [16, 17]. Prevalence of oral leukoplakia in India varies from 0.2%-5.2% [8, 11, 13, 14]. According to an Indian study at four urban centers, the prevalence of oral lichen planus varies between 0.02%-0.4% [11, 15, 18]. 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 Tamilnadu in this regard to our knowledge. We wanted to know the scenario of oral lesions related to habits in this part of the state. Therefore, a hospital based cross-sectional study was carried out using already existing data collected during a period of three months at the Department of Dentistry, India.

Materials and Methods

One thousand and twenty-eight (1028) consecutive patients from sub-urban and rural areas who attended the outpatient department, at Dental College, for dental complaints during a period of three months from August to October 2019 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. 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 patients were informed regarding the study and an informed consent was obtained. Following which they were interviewed for their adverse habits and examined by the same researcher for the presence of any oral lesions. The clinical examination was conducted by a single calibrated examiner for whom kappa statistics was determined 0.8, 2

days prior to study.

Statistical Analysis

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

The total sample size of 1028 patients consisted of 904 (87.9%) males and 124 (12.1%) females aged between 14 – 80 years. In males maximum of 41.6% (n=428) belonged to the 21-30 years age group and in females 27.4% (n=34) belonged to the 51-60 age group.

Based on education, 449 (49.7%) of the males had an education till high school level whereas in females 93 (75%) of them were uneducated. According to occupation 572 (63.3%) men were unskilled and 289 (39.1%) were skilled, while in women the highest number were housewives 73 (58.9%) and 47 (37.9%) unskilled workers. Distribution of habits: Table 1 depicts the habits included in this study were smoked tobacco (cigarette and beedis), smokeless tobacco (betel quid with tobacco and refined tobacco products like gutkha, zarda and khaini), alcohol, areca nut habit (betel quid without tobacco, powdered areca nut like supari). More than 1 habit group included patients with a combination of two habits both smoking and drinking, smoking and chewed tobacco or chewed tobacco and drinking alcohol. More than 2 habits groups included patients with three habits like smoking, chewing tobacco and drinking alcohol.

Table 2 depicts out of the 1028 patients studied, the overall prevalence of smoking was 39.2% (n=403), smokeless tobacco was 28.1% (n=289), areca nut habit was 7.6% (n=78) and only alcohol drinking was 1.3% (n=13). According to gender distribution, males had the highest frequency of smoking 44.6% (n=403) followed by smokeless tobacco 25.8% (n=233), while in females areca nut habit was the commonest habit 48.4% (n=60) followed by smokeless tobacco 45.2% (n=56). None of the female patients consumed only alcohol or used smoked tobacco.

Table 1: Distribution of the Study Population Based on Habits

Habits	Total N (%)	Male N (%)	Female N (%)
>1 habit	226(22.0)	218(24.1)	8 (6.5)
>2 habits	19(1.8)	19 (2.1)	0(0.0)
Alcohol	13(1.3)	13(1.4)	0(0.0)
Areca nut habit	78(7.6)	18(1.9)	60(48.4)
Smoked tobacco	403(39.2)	403(44.6)	0 (0.0)
Smokeless tobacco	289(28.1)	233(25.8)	56(45.2)
Total	1028(100.0)	904(100.0)	124(100.0)

Table 2: Depicts Prevalence of Various Lesions in the Study Population

Habits	Total N (%)	Male N (%)	Female N (%)
No changes	411(40.0)	369(40.8)	42(33.8)
Smoker's melanosis	121(11.)8	121(13.4)	0(0.0)
Smoker's palate	62(6.0)	62(6.9)	0(0.0)
Leukedema	73(7.1)	73(8.1)	0(0.0)
Betel chewers mucosa	29(2.8)	6(0.7)	23(18.5)
Tobacco induced keratosis	42(4.1)	37(4.1)	5(4.0)
Lichenoid reaction	23(2.2)	23(2.5)	0(0.0)
Lichen planus	8(0.8)	8(0.9)	0(0.0)
Leukoplakia	144(14.0)	120(13.3)	24(19.4)
OSMF	84(8.2)	65 (7.2)	19(15.3)
Malignancy	8(0.8)	2(0.2)	6(4.8)
> 1 lesion	23(2.2)	18(1.9)	5(4.0)
Total	1028(100.0)	904(100.0)	124(100.0)

Discussion

Three routes for progression to cancer have been proposed: oral leukoplakia/ erythroplakia- cancer, oral submucous fibrosis – cancer sequence and oral lichen planus – cancer. [19]. Hence knowing the prevalence of these precursor lesions and treating them before they progress to malignancy should be the goal of preventive oral health care workers +. The prevalence of adverse oral habits was found to be much higher in males as compared to females in this study and is in accordance with the other studies [21, 22, 23]. The consumption of alcohol was 1.3% which was the lowest compared to other habits and coincides with a study performed in Hubli India [24]. In this study population the overall education of 45.8% was till high school level while around 18% of patients were degree or diploma holders which is slightly lower when compared to a study conducted in 2004 at Chennai [23]. 75% of the female patients in this study were illiterate and the remaining with only school level education. The lack of awareness of the harmful effects of consumption of tobacco products is reflected by this low level of education. Based on occupation the largest numbers of patients (60.2%) were unskilled which included people with occupations like laborers, daily wagers, cleaners, maids, drivers, farmers etc. Most of these occupations require a substantial amount of physical energy and a high level of concentration in case of drivers with odd work timings. This can be stressful which in combination of peer pressure can lead to the initiation of deleterious oral habits. As this study population included only those patients with habits and not all the routine patients attending the department the prevalence of oral lesions is much higher than those recorded by most prevalence studies. The

duration and frequency of habits has a significant effect on the development of oral lesions which can be noted in the findings of the present study as well as in another previous study [19, 24]. Patients with the habit frequency of 5 to 10 times in a day had the maximum number of lesions. Patients with a combination of habits had fewer lesions, the possible reason being reduced time of contact or exposure to each individual habit. In conclusion, the results of the present study throw some light on the habit trends in the institution where this study has been conducted. As parameters like education, occupation have been combined with the age and gender of the patients more meaningful information is obtained regarding the prevalence of deleterious habits. The limitations of this study include potential information bias as self-reporting by the patient was used to collect the information hence underreporting of habits could have taken place. Another possible flaw could be detection bias as the researcher was aware of the habit history of the patient prior to oral examination. In future research the examiner can be blinded to the habit details and should examine the oral cavity first to prevent such bias. Further studies including comparisons of demographic data as well as dose response relationship with oral lesions with larger sample size and in the general population need to be performed. Studies observing the effects of cessation of oral habits are sparse [25, 26] hence there is no evidence regarding the chances of reversal of altered mucosa and studies need to be performed in this regard. The results of such studies can be a great tool in educating patients regarding the adverse effects of tobacco, alcohol and betel quid habits.

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