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ORIGINAL ARTICLE

Frequency of oral mucosal lesions among tobacco chewers: A cross-sectional survey

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Abstract

Background: An assortment of oral mucosal sores and conditions is related with the propensity for smoking and biting tobacco, and a large number of these convey a potential hazard for the advancement of disease. There have been no examinations that report the commonness of propensities and related oral changes in the populace in Dharwad district, Karnataka, South India.

Aims and Objectives: This study aims to evaluate the effect of frequency, duration, and type of chewable tobacco products on the incidence and severity of oral lesions (leukoplakia, oral submucous fibrosis, and tobacco-induced lichenoid reaction) among the users in North Karnataka.

Materials and Methods: A hospital-based, cross-sectional study was carried out at SDM Dental College (Dharwad, Karnataka). A total number of 90 subjects (30 patients with OSMF, 30 patients with leukoplakia, and 30 patients with tobacco-induced lichenoid reaction) attending the dental hospital were interviewed and examined by trained professionals to assess any oral mucosal changes.

Results: Oral mucosal lesions were found in all the subjects who had tobacco chewing habits. Of 90 patients (65 males and 25 females), 40 patients had a habit of chewing betel quid with tobacco (44%) and 20 patients were gutkha chewers (22%) followed by 20 patients with a habit of chewing betel quid with areca nut (22%) and 10 patients with a habit of chewing pan masala (10%). The present study showed a higher frequency OSMF in patients with gutkha chewing habits (90%), whereas patients who had a habit of chewing tobacco with betel quid had more changes of leukoplakia (70%). It was also found that patients who had habit of chewing pan masala and betel quid with areca nut had more changes of lichenoid reaction. In the present study, we found that of all the 90 patients, 70% of the patients (63 patients) were asymptomatic, whereas 30% of the patients (27 patients) were symptomatic having complains of burning sensation (23 patients) and restricted mouth opening (4 patients).

Conclusion: The study demonstrated that the danger of the advancement of oral lesions related with tobacco chewing is very high. The study fortifies the relationship of OSF with gutkha and areca nut biting while leukoplakia was normal in subjects who had a propensity for biting tobacco with betel quid that the risk of the development of oral lesions associated with tobacco chewing is quite high. The study reinforces the association of OSF with gutkha and areca nut chewing, whereas leukoplakia was common in subjects who had a habit of chewing tobacco with betel quid.

Introduction

The past century has seen the quick development of industries and urbanization, due to this development and advancement, people are exposed to physical and mental pressure. This change in lifestyle has been leading to an upsurge in adverse habits such as smoking, alcohol consumption, betel nut chewing, tobacco chewing, and so forth. These habits do more harm to the population than the actual expected stress relief.[1]

Chewing tobacco has been a basic social habit in India.[2] India is the second largest producer and buyer of tobacco next to China.[3,4] There has been a steep rise in incidence of tobacco

use among youngsters in Indian 35%.[5] These habits over a period of time invariably lead to mucosal injuries and a plethora of oral diseases and eventually lead to malignancy. Among the various adverse habits, tobacco use is a predominant hazard for the progress of premalignant lesions to malignancy. Research strongly implies that these habits of tobacco in the form of smoking or chewing, alcohol consumption have been proven etiological factors for potentially malignant disorders such as leukoplakia, oral submucous fibrosis, tobacco-induced lichenoid responses.[6,7]

Aims and objectives

This study aims to evaluate the effect of frequency, duration, and type of chewable tobacco products on the incidence and severity of oral lesions (leukoplakia, oral submucous fibrosis, and tobacco-induced lichenoid reaction) among the tobacco users in North Karnataka population.

Materials and Methods

The present study was a community-based cross-sectional questionnaire survey, conducted among the population of Hubli and Dharwad. The study was approved by the institutional ethical committee. All the patients were explained about the study and informed consent was obtained before the participation in the study. Subjects reporting to the outpatient department of oral medicine and radiology and patients, with complaints pertaining to oral lesions were included in the study.

Sample size

The group comprised 30 patients with OSMF, 30 patients with leukoplakia, and 30 patients with tobacco-induced lichenoid reaction.

Inclusion criteria

Patients with a history of tobacco-related habits and clinically diagnosed with leukoplakia, OSMF, and lichenoid reactions due to tobacco use.

Exclusion criteria

Patients having habit of chewing tobacco and smoking drugs induced lichenoid reaction. Patients unwilling to participate in the study patient with systemic illness.

After a detailed recording of history with regard to different tobacco-related habits, all the participants were subject to thorough clinical examinations for the presence of lesions which were later confirmed with histopathology.

Statistical analysis

The collected information of the data was entered into Microsoft Excel and then subjected to statistical analysis using the SPSS 11 software.

Results

Frequency of habits: Of 90 subjects screened, 10 patients (11.11%) had tobacco chewing 0–5 times per day, 50 patients (55.55%) had a habit of tobacco chewing, and 20 patients (22%) had habit since 0–5 years and >10 years, respectively [Table 1].

Duration of habits

Of 90 screened, 60 patients had a habit of chewing tobacco since 5–10 years (66%), whereas 10 patients (10%) and 20 patients (22%) had this habit since 0–5 years and >10 years, respectively [Table 2].

Prevalence of different types of habits

Of 90 subjects screened (65 males and 25 females), 40 patients had a habit of chewing betel quid with tobacco (44%) and 20 patients were gutkha chewers (22%) followed by 20 patients with a habit of chewing betel quid with areca nut (22%) and 10 patients with a habit of chewing pan masala (10%) [Table 3].

The prevalence of habits among males and females – Of 90 patients screened, 20 (22%) patients were gutkha chewers and among those 20 patients, 15 patients were males and 5 patients were female, among 40 patients (44%) with a habit of chewing tobacco with betel quid 30 were male and 10 were female, among 20 patients (22%) with chewing betel quid with areca nut 10 were male and 10 were female, and pan masala chewing habit was restricted only to the males patients 10 patients (10%) [Table 4].

Percentage of symptoms with tobacco habits – In the present study, it was evident that of 90 patients, 70% of the patients (63 patients) were asymptomatic, whereas 30% of the patients (27 patients) were symptomatic having complains of burning sensation (23 patients) and restricted mouth opening (4 patients) [Table 5].

Frequency of oral lesions with type of habit – Of 90 patients screened, it was found that patients who had a habit of chewing gutkha showed more changes of OSMF, whereas patients with a habit of chewing tobacco with betel quid had more changes of leukoplakia [Figure 1], it was also found that patients with a habit of chewing tobacco with areca nut showed more changes

Table 1: Correlation of frequency of lesions with the number of times of chewing of tobacco products

Number times patient chews tobacco (times)	Percentage of subjects having lesions (%)
0–5	11.11
5–10	55.5
>10	33.33

Table 2: Correlation of duration of tobacco-related habits and occurrence of lesions

Duration of habits (year)	Percentage of occurrence of lesions
0–5	22
5–10	11
>10	66

Table 3: Percentage of distribution of habits with respect to different types of tobacco habits

Type of tobacco chewing habit	Gutkha	Tobacco with betel quid	Areca nut with betel quid	Pan masala
Percentage of the occurrence of lesions (%)	22	44	22	10

Table 4: Prevalence of the type of habits among males and females

Gender	Gutkha	Tobacco with betel quid	Areca nut with betel quid	Pan masala
Male	15	30	10	10
Female	5	10	10	0

Table 5: Percentage distribution of symptoms with habits

Symptoms (%)		Asymptomatic
Burning sensation	Restricted mouth opening	
22	5	60

of lichenoid reaction and patients who had a habit of chewing pan masala exclusively showed lichenoid reaction of oral mucosa [Figure 2, Table 6].

Figure 1: Speckled leukoplakia

Figure 2: Tobacco-induced lichenoid reaction

Discussion

The present study is cross-sectional survey relating the duration and type of tobacco-related habits with different oral pre-malignant lesions. In the present study, a large proportion of the tobacco chewers had occupation with long daytime-based work distribution such as farmers, retailers, drivers, and day laborers. Majority of these occupations require high physical activity and more likely prompt subjects to fall prey for tobacco-related habits.[8-12]

In the present study, the age range of subjects was between 22 years and 61 years with a mean of 38 years.

Of 90 patients, 65 were male and 25 females who had a habit chewing tobacco, the male predominance of tobacco habits is in accordance with a study done by Mathew *et al.*[13]

Among the various types of habits, tobacco with betel quid was most commonly observed (44%) followed by gutkha chewing (22%) and betel quid alone (22%). This is in accordance with reports of Mathew *et al.*[13] which revealed that of 1190 patients, subjects chewing betel quid with tobacco were highest (44%) followed by gutkha chewers (22%) and betel quid with areca nut (22%) and also with reports of Mukherjea *et al.*[14]

The present study demonstrated a higher occurrence of OSMF in patients with gutkha chewers while patients with the habit of tobacco with betel quid had more changes of leukoplakia. This is in accordance with the results of Maher *et al.*[6] and with reports of Zain *et al.*[15] who reported that there was a higher prevalence of OSF among gutkha chewers than among people who did not chew areca nut products. Reports from the study by Trivedy *et al.*[16] also mentioned high incidences of OSF in subjects with areca nut chewing habits.

Chewing tobacco with areca nut habit is strongly related to the occurrence of leukoplakia; this finding in the present study is similar to the report of Hashibe *et al.*[17] The habits of chewing gutkha and smoking among women were minimal.

It was also found that patients who had habit of chewing pan masala and betel quid with areca nut had more changes of lichenoid reaction which is in accordance with a study done by Silverman *et al.*[18]

In the present study, it was found that of all the 90 patients, 70% of the patients (63 patients) were asymptomatic, whereas 30% of the patients (27 patients) were symptomatic having complaints of burning sensation (23 patients) and restricted mouth opening (4 patients). Also noted, in the present study that buccal mucosa was the most common site for the appearance of oral lesions induced by tobacco.

Table 6: Frequency of habits and distribution of various lesions

Types of lesions	Types of habits			
	Gutkha	Tobacco with betel quid	Areca nut with betel quid	Pan masala
OSMF	18	10	6	0
Leukoplakia	22	28	0	0
Lichenoid reaction	0	2	14	10

Conclusion

It was strongly evident from the study that subjects with habit of tobacco chewing with betel quid had highest frequency of lesions compared to other types of habits. Subjects with gutkha chewing habit had high occurrence of OSMF. More strikingly, majority of the subjects were devoid of any symptoms. Lack of symptoms may lead to delayed diagnosis due to the patient not reporting to health-care professionals. This aspect mandates to create an awareness of ill effects of tobacco among its users to reduce the diagnostic delay and to prevent the occurrence of malignancy.

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