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ORIGINAL ARTICLE

Prevalence of oral precancer and cancer in south kerala population

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Abstract:

Introduction: Oral cancer is a major concern in developing countries. India accounts for one third of worlds oral cancer and has a high rate of oral precancer. Early detection of premalignant conditions can improve the prognosis of the disease. **Objective:** 1.To evaluate the prevalence of oral precancer and oral cancer among patients in south Kerala, India. 2. To evaluate the association of tobacco related oral precancer and oral cancer with abusive habits. **Methods:** A total number of 10999 patients, aged 20-80yrs, who visited the outpatient department of a dental college for the diagnosis of various complaints over a period of 8 months were interviewed for oral risk habits, duration and frequency of the habit and current usage of any medications. Patients were clinically examined by trained professionals. **Result:** The prevalence of oral precancer and cancer was seen in 1.08 % of the population. The prevalence of oral lichen planus was 0.72 % followed by leukoplakia 0.23 %, oral submucous fibrosis .072 %, oral cancer .036%, and erytroplakia .009%. Tobacco related oral lesions like leukoplakia, oral submucous fibrosis, oral cancer, erythroplakia were more prevalent among men as compared to women. The tobacco related abusive habits like smoking and chewing tobacco were more prevalent among men. **Conclusion:** This study provides the prevalence of oral precancer and oral cancer among patients in South Kerala. It also reinforces the association between tobacco products and tobacco related oral precancerous lesions.

Keywords: Tobacco; Leukoplakia, Oral; Oral Submucous Fibrosis; Lichen Planus, Oral

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INTRODUCTION

Among the oral diseases oral cancer is a major concern. Two-thirds of them are from developing countries. India accounts for one third of world's oral cancer and has a high rate of oral precancer. Oral cancer is often preceded by oral precancer[1]. The most frequent lesions include leukoplakia, lichen planus, erythroplakia and oral submucous fibrosis. Studies have shown that up to 18% of oral precancer develops into oral cancer[2,3]. Early detection of premalignant conditions can improve the prognosis and help in disease prevention.

Hence the aim of the present study was to evaluate the prevalence of oral precancer and oral cancer, and its association with abusive habits.

MATERIALS AND METHODS

This cross-sectional study was conducted among 10999 patients, aged 20-80 years, who visited the Department of Oral Medicine and Radiology, Pushpagiri College of Dental Sciences, Kerala, South India, over a period of 8 months. All subjects were examined clinically and interviewed regarding any abusive habits like pan chewing, smoking and alcohol intake, and the frequency and duration of the habit. The patients were examined using artificial light, mouth mirror, gauze, and tongue depressor. Diagnosis was made based on history, clinical features, investigations and according to the WHO guidelines.

Descriptive analysis was performed for all variables. Chi-square test was used to determine the association of oral precancer lesions with tobacco and non tobacco users. A p values less than 0.05 were considered as the level of significance.

RESULTS

Out of the 10999 subjects examined, 5013 (45.6%) were males and 5986 (54.4%) were females. Among the subjects 119 (1.08%) had oral lesions. The proportion of lesions among males (1.14%) was not significantly different from that of females (1.04%) as shown in Table I. Of the 2170 (19.7%) subjects who were smokers, 1220 (11.09%) subjects were presently smokers, 950 (8.63%) were ex-smokers, and the remaining, 8819 (80.18 %) were non-smokers. The habit of chewing tobacco was present in 420 (0.03%) subjects. The frequency of tobacco chewing was more prevalent in males 300 (71.4%) than in females 120 (28.5%).

Table 1. Distribution of oral precancer lesions according to gender.

Gender	No of cases screened	No. of patients with lesion (%)	P Value
Male	5013	57 (1.14)	0.675
Female	5986	62 (1.04)	

A total of 119 (1.08%) subjects had oral precancer like oral lichen planus, leukoplakia, oral submucous fibrosis, oral squamous cell carcinoma and erythroplakia. Out of the 119 patients with oral precancer 57 were males and 62 were females. Out of the 119, tobacco associated lesions were 39 (32.8 %). Males (89.7%) had significantly more tobacco associated lesions (p=0.0001) where as 72.5% of the non-tobacco associated lesions were among females as shown in Table 2.

Table 2. Distribution of oral precancerous lesion according to gender and habit.

LESION	GENDER		TOTAL (%)	P value
	Male (%)	Female (%)		
Tobacco associated lesions	35 (89.7)	4(10.3)	39(32.7)	0.0001
Non-tobacco associated lesions	22 (27.5)	58(72.5)	80(67.2)	

Tobacco associated lesions were present in 39 subjects, 35 males and 4 females. Non tobacco associated lesions were present in 80 subjects 22 males and 58 females. The most prevalent lesion was lichen planus (0.72%), followed by leukoplakia (0.23%), oral submucous fibrosis (0.072%), oral cancer (0.036%), erythroplakia (0.009%) as shown in Table 3.

DISCUSSION

Oral cancer is one of the major causes of death in developing countries. Dentists and surgeons have a major role in diagnosing oral cancer and oral precancer. Timely diagnosis and treatment oral precancer helps in prevention of oral cancer. Three routes of progression to oral cancer have been proposed: oral leukoplakia / erythroplakia to cancer, oral submucous fibrosis to cancer and oral lichen planus to cancer[4].

The prevalence of oral precancer in our study was 1.08%. This finding is much lower compared to the study conducted in Chennai where the prevalence was 4.1%. A prevalence 10% was reported by studies conducted among Saudi adults but they included only patients with tobacco habits[5].

In accordance with the previous studies we have observed that oral precancer were significantly more common among men than women (p<.05)[5-7].

Table 3. Distribution of oral precancer and cancerous lesion according to age and sex.

LESION	GENDER	AGE				TOTAL (%)
		2-20 YEARS	21-40 YEARS	41-60 YEARS	61-80 YEARS	
Lichen planus	Female	0	18	27	11	80 (0.72)
	Male	1	5	11	5	
Leukoplakia	Female	0	0	0	2	26 (0.23)
	Male	0	2	17	5	
OSMF	Female	0	0	1	0	8 (0.92)
	Male	0	5	2	0	
Oral cancer	Female	0	0	1	0	4 (0.03)
	Male	0	0	2	1	
Erythroplakia	Female	0	0	0	0	1 (0.009)
	Male	0	0	0	1	

In our present study out of the 10999 subjects, 80 (.72%), of them had oral lichen planus which is found to be less compared to that found in Swedish[8] (1.9%) and Japanese[9] populations. In our population lichen planus was more frequently observed among women than men, out of the 80 subjects with lichen planus 58 (72.5%) were women and 22 (27.5%) men respectively. This in accordance with the results obtained by Axéll and Rundquist[8], and Kovac-Kovacic and Skaleric[9] in Slovenia. The most affected age group was 41-60 years, that was in accordance with other studies done by Anvar et al. among Egyptians and Pakfetrat et al.

Leukoplakia was the second common lesion, which was prevalent in 26 (0.23 %) subjects. This is in accordance to the finding by Shulman et al among adults in USA, but it is low as compared to the findings by Ikeda in Japan (25%), Rooban et. al in Chennai, South India (7.4%) and Espinoza et al. in Santiago, Chile (1.7%). All the subjects in our study with leukoplakia were smokers or tobacco chewers. It was more prevalent among men, 24 men as compared to 2 women (92.3% and 7.7%, respectively). This prevalence is less as compared to the results obtained in Thailand by Reichart et al.[10] (1.1%) and in Hungary by Bánóczy and Rigó[11] (1.3%). The most frequent site of involvement was buccal mucosa followed by alveolar mucosa and the retromolar region. Toludine blue staining was done and biopsy was advised if there was stain uptake.

The prevalence of oral submucous fibrosis in our population was (0.72%). Out of the 8 patients with oral submucous fibrosis 7 were men. This is comparable to the prevalence found in Combodian population (0.2%)[12]. Another study conducted in Chennai by Saraswathi et al.[6], reported similar prevalence of 0.55%. The study done by Narasannavar and Wantamutte[13], reported higher prevalence of 4.4% as more number of participants had the habit of chewing tobacco.

The prevalence oral cancer in our study was (0.036%) seems similar to the studies conducted among South Indian population by Mathew et al.[14] (1.7%). Males had a higher predilection as compared to females. All the patients in our study who had oral cancer were tobacco abusers. Biopsy was done all cases. This prevalence is more than that found by Ikeda in a Combodian population (0.1%) 12 and by Axéll and Rundquist[8] (<0.1%) in Sweden.

In our study the prevalence of erythroplakia was (0.009%) only 1 patient had erythroplakia, comparable to the studies conducted in the rural population of Belgaum, South India 13, and in Mumbai by Talole et al.[15] where 4 participants (0.47%) and in 3 patients in the study conducted among Turkish population[16]. In the present study erythroplakia was observed in the patient with tobacco chewing.

CONCLUSION

The results of the present study throw some light into the prevalence of oral precancer and its association with habit trends among patients visiting a dental school in South Kerala. The results also showed that tobacco associated lesions were observed more in males than in females. Due to the high risk of malignant transformation of these oral precancerous lesions, intervention programs to discourage the use of tobacco products should be a priority. This information may help as a useful tool in educating the public and patients about the harmful effects of the abusive habits. Close follow up and systematic evaluation is needed in this population.

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