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Research Article

Prevalence of Erythroplakia and Leukoplakia among the tobacco users aged above 60 years in rural area of Pondicherry

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Abstract: Tobacco is a potential risk for malignancy in oral cavity and is widely prevalent among all types of tobacco users. It is important to estimate the pre malignant lesions among the selected age group of tobacco were at periodic intervals. The objective is to find the prevalence of Erythroplakia and Leukoplakia among tobacco users aged above 60 years in rural community of Pondicherry Community based, cross sectional study was conducted during September and October 2014 by interviewing the subjects at their doorsteps using the pre designed questionnaire. A sample of 250 subjects from a village belongs to Kumarpalayam PHC was selected. The information collected related to demographic, tobacco user details and risk factors followed by oral examination in the good sunlight. There were 124 men and 126 women aged above 60 years as subjects with their mean age as 69.7+7.8 years. Many of the subjects were illiterates, non agricultural sector workers and the duration of tobacco was not less the 25 years. The prevalence of Erythroplakia and Leukoplakia was 10 percent and 80 percent of the lesions were single with varying sizes. The prevalence of pre malignant lesions is high among the chronic tobacco users of elderly population. It is necessary to do in depth study by comparing the prevalence with non tobacco users in the specific age group population.
Keywords: Tobacco, community based, Erythroplakia, Leukoplakia, Prevalence, elderly, rural, pre malignant

INTRODUCTION

Tobacco induced diseases are broad categories affecting almost all systems in the body in various degree. Apart from cardiovascular and cerebra vascular diseases, tobacco is a potent carcinogenic among chronic users for the respiratory and oral cavity cancers [1-3]. The different ways in which tobacco is used lead to considerable variation in appearance, site and frequency of the lesions associated with the tobacco habit. In Western countries, cigarettes, cigars and pipes are the major ways in which tobacco is used, but chewing tobacco and snuff dipping (smokeless tobacco) have become more popular in recent years (4). Smokeless tobacco is an addiction for hundreds of millions of people worldwide and the use by young people is increasing in many countries. All contain nicotine and nitrosamines[2]. Betel quid with or without tobacco is widely used in the Indian subcontinent as well as throughout Asia and the Pacific region (e.g., Cambodia, China, Indonesia, Malaysia, Philippines, Taiwan, Thailand) [4,5]. Global estimates report that up to 600 million men and women use some variety of betel quid[2].

Tobacco is a major etiologic factor in leukoplakia, epithelial dysplasia, squamous cell carcinoma and several other tobacco-associated lesions are known. Leukoplakia is a white or gray patch that develops on the tongue, the inside of the cheek, or on the floor of the mouth. Leukoplakia patches can occur at any time in your life, but it is most common in senior adults. It is the mouth's reaction to chronic irritation of the mucous membranes of the mouth [6,7]. The malignant and nonmalignant lesions associated with tobacco use could result in the presence of more than one type of lesion in any individual patient. These oral diseases contribute significantly to the global disease burden. Oral cancer is the eleventh most common cancer worldwide and tobacco use is estimated to account for about 41% of oral/pharyngeal cancer cases in men, and 11% in women [5].

The estimated prevalence of oral leukoplakia is approximately 2% in the world. In a systematic review, summarizes the world prevalence of leukoplakia based on 23 studies from 17 countries published between 1986 and 2002 calculated a global prevalence of 2.6% [6-11]. It is necessary to know the prevalence at periodic interval among selected groups of the

population. Hence this study was conducted with objective to find the prevalence of Erythroplakia and Leukoplakia among tobacco users of elderly population in rural Pondicherry.

METHODOLOGY

This is a community based, cross sectional study conducted during the period of September to October 2014. A village was selected as a study area situated in the Kumarpalayam PHC in the rural part of Pondicherry. The 9 percent of population were aged above 60 years and the life expectancy of Pondicherry is 75 years. The literacy rate among the elderly age group is poor and majority of this age group were working in agriculture sector. The products of tobacco are freely available in all the shops in the villages and no restrictions to sell among any age group.

Definition of Erythroplakia and leukoplakia

Erythroplakia is a red colored patch in the buccal mucosa and Leukoplakia is a white colored keratotic patch or plaque on the mucous membranes in the mouth that cannot be scrapped off cannot be characterized clinically or pathologically as any other disease [3, 6-8].

Inclusion criteria

It was based on two conditions. Firstly the subjects should be aged above 60 years and secondly the subjects should have used tobacco products in the past or continue to use.

The investigators randomly selected 250 subjects available at their home at the time of data collection and who were fulfilling the inclusion criteria for the study. The subjects were explained about the study and requested for the consent. The data was collected using the direct interview technique and information was entered in the semi open ended questionnaires. The questions were repeated and sufficient time was given to them to recollect and provide the information to overcome their ageing problems and memory recollection.

The data included were age, sex, literacy, occupation, use of tobacco products, type of tobacco, duration of tobacco usage, health problems. All the subjects were examined in a good light for the presence of Erythroplakia or Leukoplakia on the buccal mucosa, soft palate, hard palate and pharynx. All the subjects were requested to rinse their mouth before oral examination.

The data were analysed using statistical software SPSS version 17 and the percentages, mean, standard deviation, student t test and chi square tests were applied, the statistical significance was considered when p value is less than 0.05.

RESULTS

The study analysed the 17429 person years on oral lesions to tobacco products use and there were 124 men and 126 women. The mean age of the subjects was 69.7$\pm$7.8 years (men 69.6$\pm$7.6 years and women 69.8$\pm$8.1 years).

Table-1: Distribution of tobacco use among men and women according to their age groups

Age group in years	Men		women	Total
	Smoking form	Chewing form	chewing form	No. (%)
61 - 65	33	10	55	98 (39.2)
66 - 70	37	8	26	71 (28.4)
71 - 75	9	2	15	26 (10.4)
76 +	16	9	30	55 (22)
Total	95	29	126	250(100)

Table 1 shows the tobacco use pattern among the subjects. Majority of the subjects were aged between 61 to 70 years and all women subjects were using the non smoking tobacco products. The common form of tobacco was found to be beedies, cigarettes and betel quid.

Table-2:Duration Tobacco usage in years.

	Total Number	Mean	$\pm$ SD	p value*
Education				
Illiterates	184	26.2	11.2	
Literates	66	25.1	11.5	o.4
Occupation				
Non Farming	209	25.8	11.3	
Farming	41	26.1	11.5	0.8
Gender				
Men	124	27.7	11.1	
Women	126	24.2	11.4	0.9

*student ‘t’ test

Table 2 shows the mean duration of tobacco usage was slightly high among illiterates, farmers and men, however this difference is found to be statistically not significant between the comparable variables.

Table 3 shows the prevalence of oral patches (Erythroplakia, Leukoplakia or both) among men and women were 10.4% and 9.5% respectively. The proportion of single patch of various sizes was slightly higher in number. The prevalence of patch was 10.9% and 9.0% among illiterates and literates, 11.4% and 4.8% among non farming and farming sector occupations.

Table-3:Prevalence of Erythroplakia and Leukoplakia among men and women aged above 60 years

		Male		Female		Total No. (%)
	Total Num	Single Patch	> 1 Patch	Single Patch	> 1 Patch	
Illiterates	184	6	2	10	2	20(10.8)
Literates	66	5	1	0	0	6(9.0)
Non Farmers	209	10	2	10	2	24(11.4)
Farmers	41	1	1	0	0	2(4.8)
Tobacco usage in yrs						
< 10	34	1	0	1	0	2(5.8)
11 - 30	146	5	1	6	0	12(8.3)
31+	70	5	2	3	2	12(15.7)
Total	250	11	3	10	2	26(10.2)

DISCUSSION

The pre malignant lesions such as Erythroplakia and Leukoplakia are common among the tobacco users for longer duration. This study selected the population aged above 60 years to estimate the prevalence of patches among the tobacco users so that it will help the service provider to conduct the screening procedures periodically and create awareness in the community on hazards to oral health.

The mean age of the study population was 69.7+7.8 years but the mean age of the subjects with the presence of patch was observed to be 74.9+8.6 years (men 75.0 +8.5 years and 74.8+9.1 years for women). The smokeless tobacco use was common among women in Asian countries compared to other regions and is similar in this study[2, 4,5,9,11,12].

It is interesting that in this study men or women irrespective of their age, literacy or occupation status they used tobacco on an average of not less than 25 years. There were more illiterates and non farming sectors of occupation subjects accounting for 73% and 83% respectively as in table 2. Nearly 73 percent of subjects were using tobacco products 1-5 times in a day and ten percent of the subjects were occasional users (once or twice in a month). The occupation of the subject was based on their previous work where most of their life was spent. The reason for analyzing tobacco use on oral lesions among illiterates and non farming sectors was to know whether these group practical the same betel quid habits. However it is found to be not statistically significant in terms of duration of tobacco use. Many studies have analysed the risk of getting pre cancerous lesions based on the duration, frequency and type of tobacco products in different age groups but only very few studies available among elderly people at the community level[4,6,9, 13-16]. Men and women initiated the habit of tobacco usage about 30 years ago where there were no restrictions on sale of tobacco products and possibly the peer group pressure while working or spending leisure time. In this study there was no large difference in the duration of tobacco usage between men and women.

The proportion of single patch lesions were larger in number in this study which is accounting to 81 percent and found more among men than women as in Table 3. This could be attributed to the smoking form of tobacco use and the habit of not keeping the betel quid in the mouth for longtime by women or related to increase in frequency of tobacco use per day. However other studies also proved that in India and Asian countries the men has high prevalence of oral patches in most of the hospital based studies[10, 13-16]. Literacy status does not have direct influence on the occurrence of oral patches in the mouth. But the awareness about the hazards and health effects to the tobacco use may be understandable if they are literate. In this way out study shows that the prevalence was high among illiterates[14-16].

The associated morbidities such as Diabetes mellitus and Hypertension was present in 7 men and 8 women and the oral patches was present in 50 percent of these elderly subjects. It is proved that the risk is high among diabetes in developing leukoplakia irrespective of tobacco use .The odds ratio for oral Erythroplakia was 3.2 and Leukoplakia among women with a history of diabetes mellitus was found to be 2.0, after adjusting for potential confounders[12]. Thus there is more potential for elderly people to develop oral pre malignant lesions in future as result of increase in the prevalence of Diabetes mellitus in our country.

LIMITATIONS

Many elderly women and men were tobacco chewers along with the betel nut leaves and slaked lime (Betel quid) as result some of their mucous membrane was stained deep or black in color and it was difficult to find out either the presence of the lesion or the correct number of patches. Hence the prevalence of Erythroplakia and leukoplakia may be underestimated in this study. Since this is a community based study and it was difficult to take biopsy from the lesion for the histopathology examination.

CONCLUSION

The prevalence of Erythroplakia and Leukoplakia was above 10 percent among the elderly aged population among the tobacco users in this study. It is important to study comparing the prevalence of such premalignant conditions including Sub mucosal fibrosis (SMF) lesions among the tobacco and non tobacco users.

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