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RESEARCH ARTICLE

PREVALENCE OF ORAL PRECANCEROUS LESIONS AMONG POPULATION OF SASIHITLU VILLAGE, MUKKA, DAKSHIN KANNADA DISTRICT, KARNATAKA, INDIA

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ABSTRACT

Oro-pharyngeal cancer is one of the six most frequently occurring cancers. Oral cancer is often preceded by specific lesions and conditions that are called precancerous. A number etiological agents and pathological processes have been found to be associated with oral precancerous lesions. These changes may result from chronic physical trauma, tobacco use, genetic abnormalities or in many instances cause may not be known. The purpose of this epidemiological study was planned to evaluate prevalence of oral precancerous lesions based on data such as distribution according to age, sex and intraoral locations and to determine correlation between prevalence of oral habits and oral mucosal white lesions among population of Sasihitlu Village, Mukka, Dakshina Kannada District, Karnataka, India. In present study, oral precancerous lesions were detected in 43 of the 1267 (3.4%) individuals of population. The prevalence rate of 3.4% does not reflect the whole population but provides information on the epidemiological aspects of oral precancerous lesions, which may prove valuable in planning future oral health studies and implementing preventive programs in Sasihitlu Village, Mukka, Dakshin Kannada District, Karnataka, India.

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INTRODUCTION

Cancer is a major cause of disease and death throughout the world. Oro-pharyngeal cancer is one of the six most frequently occurring cancers. Oral cancer is often preceded by specific lesions and conditions that are called precancerous. Different lesions have been reported to have potential to transform into cancer. Among these, the most frequently mentioned are leukoplakia, lichen planus, erythroplakia, oral submucous fibrosis and nicotine stomatitis (Melrose, 2001; Gupta *et al.,* 1989). A number etiological agents and pathological processes have been found to be associated with oral precancerous lesions. These changes may result from chronic physical trauma, tobacco use, genetic abnormalities or in many instances cause may not be known (Gorsky *et al.,* 2004). Sasihitlu, a coastal area of Dakshina Kannada District, Karnataka, India, is known to have a large population of Hindus. Total population till date is about 2400.

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The main source living is fishing. It has been observed that a large section of population is involved in habits like smoking, chewing quid and alcohol consumption. The purpose of this epidemiological study therefore was planned to evaluate prevalence of oral precancerous lesions based on data such as distribution according to age, sex and intraoral locations and to determine correlation between prevalence of oral habits and oral mucosal white lesions among population of Sasihitlu Village, Mukka, Dakshina Kannada District, Karnataka, India.

MATERIALS AND METHODS

A cross-sectional door to door survey was performed on 1267 people of Sasihitlu village, Dakshina Kannada District. Total no. of houses surveyed was 237. The survey was conducted in the locality in eight sittings to evaluate whole population from August 2005 to November 2005. The patients were examined in a dental chair, using artificial light and mouth mirrors. The examinations were carried out by the same investigators. Clinical criteria for the diagnosis of precancerous lesions and conditions were based on widely accepted international criteria

and WHO codes. Participants, after receiving detailed information about the procedure, filled out a precoded questionnaire about tobacco and alcohol use, dietary habits with respect to spicy food, denture wearing and subjective complaints. Suspected lesions were biopsied after the informed consent of the patients had been obtained.

RESULTS

The age and sex distributions of the participants are shown in Table 1. In 43 of the 1267 (3.4%) individual, oral precancerous lesions were detected.

Table 1. Age and sex distribution of 1267 individuals examined

Age	Male		Female		Total	
	N	%	N	%	N	%
≤ 19	126	10.0	76	6.0	202	16.0
20-29	148	11.7	124	9.8	272	21.5
30-39	133	10.5	113	8.9	246	19.4
40-49	120	9.5	107	8.4	327	17.9
50-59	103	8.1	89	7.0	192	15.1
60≥	65	5.1	63	5.0	128	10.1

Oral leukoplakia was found in 30 patients (2.3%). 21 were men (70%) and 9 were women (30%) with a mean age of 47. 24 of the lesions were homogeneous type (80%) and six were non-homogeneous type (20%). The most frequent site of leukoplakia was the buccal mucosa (53.3%) followed tongue (20%), alveolar ridge (13.4%), commissure (6.7%), labial mucosa (3.3%) and floor of the mouth (3.3%). Analyzing the etiological factors, mechanical factors (chronic cheek biting, and bad fitting removable and fixed dentures) were found in 2 patients (6.7%). Tobacco and alcohol use, and spicy food consumption were found in 93.3 % of the patients. Lichen planus was detected in 1 female patients of 51 years old (0.08%). Lesion weas localized in posterior buccal mucosal region. Smoking was the suspected etiological factor. Erythroplakia was detected in 11 patients (0.9%). 7 were men (63.6%) and 4 were women (36.4%) with a mean age of 52. 7 of the lesions were in plaque form (63.6%) and 4 were as a reddish white region (erythroleukoplakia) (36.4%). The most frequent site of erythroplakia was the buccal mucosa (63.6%) followed alveolar ridge (18.2%), commissure (9.1%) and floor of the mouth (9.1%). Analyzing the etiological factors, tobacco and alcohol use were found in 100% of the patients. Oral submucous fibrosis was detected in 1 male patient (0.8%). Quid and tobacco use were the suspected etiological factor. Of the 1267 individuals examined, 123(9.7%) were smoking tobacco, 87 (6.9 %) were smokeless tobacco users, 34 (2.7%) were regularly drinking and 67 (5.3%) tobacco users and drinkers. Out of 43 patients having oral precancerous lesions, 24 (55.8%) smoking tobbaco, 11 (25.6%) were smokeless tobacco users and 6 (14.0%) were tobacco users and drinkers.

DISCUSSION

Prevalence studies in dentistry are mostly based on either the examination of total population samples or dental outpatients (Hogewind and van der Wall, 1988; Banocyz and Rigo, 1991). There are few studies reporting oral precancerous lesions in a general population due to the difficulties of the method. Examination of dental outpatients is easier to perform but it does not give information about the whole population. Oral leukoplakia is one of the most frequently encountered white lesions in clinics. It is generally seen at ages between 50 and 70 with a male preponderance. The prevalence of oral leukoplakia based on epidemiological data from different countries over the last 30 years varies from 1% to 13% with a mean value of 3% (Dambi *et al.,* 2001). The buccal mucosa, floor of the mouth, lateral tongue and soft palate have the highest rate of localization (Banocyz and Rigo, 1991; van der Wall *et al.,* 1997). In our study 53.3% of the oral leukoplakia was located in the buccal mucosa, which is quite a high rate when compared to those of previous studies. Erythroplakia is seen less frequently than leukoplakia but it is more life threatening (Melrose, 2001). (Waldron and Shafer, 1975) studied 58 cases and found that 51% were early invasive carcinoma in situ or severe dysplasia. In our 11 patients displastic changes were detected on microscopic examination. Erythroleukoplakia is a lesion with a high malignant potential (Melrose, 2001). In this study the prevalence quite high and many of them may progress to cancer in a short time, which necessitates a close follow-up of patients.

Oral lichen planus, considered a precancerous condition, is generally located bilaterally and its etiology is not fully understood (Akal, 1997 Camisa *et al.,* 1998). Axell and Rundquist (Axell and Rundquist, 1987) found a prevalence of 1.9% among Swedish people and Axell *et al.,* 1990 reported rates of 3.8% and 2.1% in Thai and Malaysian outpatients respectively. In our study, one case was detected and smoking was suspected etiological factor. Oral submucous fibrosis is commonly seen in India and Southeast Asia but it can be encountered all over the world due to high migration rate (Cox and Walker, 1996). One case of oral submucous fibrosis was detected and the habit of areca nut chewing was suspected etiological factor. The relative risk of oral cancer is increased between ten and 15-fold in smokers and fivefold in those who chew tobacco. Those who stop smoking can halve their risk of developing oral cancer within a decade. Alcohol and nicotine consumed together develop a synergistic effect on carcinogenesis and multiply the risk of oral cancer. It has been estimated that such cancers in tobacco and alcohol users develop about 15 years earlier than in people who neither smoke nor drink (Kerawala, 1999; Crews *et al.,* 1999; Franceschi *et al.,* 1992; Ikeda *et al.,* 1995; Campisi and Margiotta, 2001). In Sasihitlu Village, alcohol and tobacco consumption rates are increasing, especially among young people; however, the low rate of alcohol and tobacco use in our study may be attributable to hesitation of patients to report it to a doctor.

Today, cancer is one of the leading threats to human life. Studies on precancerous lesions are very important since it is known that oral cancers still cannot be diagnosed adequately in early stages. The role of the dentist in detecting oral carcinomas and premalignant lesions is crucial. The prevalence of oral precancerous lesions varies from 2% to 4% according to the investigated population. In our study, the prevalence rate of 3.4% does not reflect the whole population but provides information on the epidemiological aspects of oral precancerous lesions, which may prove valuable in planning future oral health studies and implementing preventive programs in Sasihitlu Village, Mukka, Dakshin Kannada District, Karnataka, India.

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