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Original Research Paper

Community Medicine

PREVALENCE OF POTENTIALLY MALIGNANT DISORDERS OF ORAL CAVITY IN ADULT POPULATION IN THE RURAL AND URBAN AREAS OF ALIGARH

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ABSTRACT

Introduction: Oral cancer is a serious problem worldwide. It is sometimes preceded by clinically visible lesions which are called precancerous lesions, and usually culminate in development of oral cancers. Oral malignancies lay a huge burden on the patients, socially as well as economically. Community intervention programs along with involvement if dental health professionals could play a huge role in limitation of the oral malignancies.

Aims and objectives: To find out the prevalence of oral potentially malignant disorders in Aligarh, and its association with age and gender.

Methods: Community based Cross sectional descriptive study was performed using a pretested questionnaire in a sample of 1078 participant .Systematic Random Sampling was used and the data analysis was done using SPSS24.

Results: 25.3% of the participants were found to have clinical features of Oral Potentially Malignant Disorders (OPMD), overall prevalence of OPMD was 19.1% in study participants, more prevalent in age group 46-55 years (28.9%), and in males (33.5%) as compared to females (7.8%).

Conclusion and Recommendations: Community intervention programs, and Government aided programs should be put in place to curb this very important public health problem. The role of dental health professionals in motivating the population to limit the consumption of tobacco and tobacco containing products also cannot be undermined.

KEYWORDS : Precancerous lesions, Leukoplakia, Erythroplakia, Oral submucous fibrosis

INTRODUCTION:

Oral cancer is a serious and growing problem in many parts of the globe[1].Oral and pharyngeal cancer, grouped together, are the sixth most common cancers in the world. Oral cancer is sometimes preceded by clinically visible lesions which are noncancerous to begin with and which have therefore been termed precancerous. The most common oral potentially malignant lesions are leukoplakia, erythroplakia, and oral submucous fibrosis. Oral cancers include the main sub sites of lip, oral cavity, nasopharynx, and pharynx and have a particularly high burden in South Central Asia due to risk factor exposures.[2]

A large number of these patients with pre malignant lesions progress to oral cancer in due course of time which include leukoplakia[3], erythroplakia[4], submucus fibrosis[5], among others. Approximately half of the total cases of cancer are preventable. Tobacco is considered the single most avoidable risk factor for carcinomas od the oral cavity which accounts for almost 6 million deaths each year, from cancer and other diseases.[2]

In Asians, oral potentially malignant disorders are known to be associated with cigarette smoking, excess alcohol consumption, and areca quid chewing[6].Besides these, body mass index[7] and certain dietary factors like low vegetable intake and less frequency of fruits consumption are independent risk factors for development of oral potentially malignant disorders.[8]

Potentially malignant oral lesions and its squeal cause a huge impairment in the quality of life, socially, as well as economically. Hence, primary prevention is considered as the most cost- effective method that could be followed to prevent the occurrence of oral cancers. As it aims to reduce the incidence of potentially malignant disorders by risk factor modification. Most of the general public is poorly informed about the risk of oral potentially malignant disorder and ways to prevent this disease. Early detection is of critical importance, and survival rates markedly improve when identified at early stage. Investigating the prevalence of oral mucosal lesions will prevent malignant transformation. With limited literature available to draw conclusions about the prevalence of oral potentially malignant disorders, more studies are needed in order to better understand the epidemiology of this destructive disorder. Hence, this study was performed to assess the prevalence of oral potentially malignant disorders and to determine the potential risk factors for its development.

MATERIALS AND METHODS:

Study population and sampling:

The study was conducted in rural and urban field practice areas under department of community medicine, Jawaharlal Nehru Medical College, Aligarh, a city situated in western Uttar Pradesh, India. The study subjects included in the study were residents of the field practice areas of the department of Community Medicine J N Medical College , AMU, Aligarh. All individuals more than 18 years of age were selected through systematic random sampling after application of PPS (Population Proportionate To Size) to the total population of the field practice areas . It was a cross sectional

descriptive study which was carried out for a duration of 1 year i.e. July 2017 to June 2018. Individuals with a known malignant condition or having conditions other than aforementioned criteria were excluded from the study.

Taking prevalence of potentially malignant oral disorders as 13.7%[9] and relative error of 16% with absolute precision of 5% and confidence interval of 95%, the sample size was calculated to be 985, which, after application of 10% allowable error came out to be 1083. Out of the total, 5 subjects were excluded owing to some technical issue with the analytical software. So the final sample size came out to be 1083-5=1078.

Study tools:

A pre tested self structured questionnaire was developed which was validated after a pilot study on 10% of the population in the field practice areas. It included information on socio demographic characteristics, dietary habits, medical history, oral health, adverse habits and clinical profile of the participant. An oral examination (Inspection and Palpation) was conducted and the entire oral mucosa was checked for signs of oral potentially malignant disorders using mouth mirror. To avoid bias, data collection and oral examination were performed by the same expert.

Functional definitions of pre malignant lesions were used for making the diagnosis among the participants as follows:

Leukoplakia: a white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer.[10]

Erythroplakia: A fiery red patch that cannot be characterized clinically or pathologically as any other definable disease.[10] Shear classified erythroplakia into three variants namely:

a) Homogeneous erythroplakia – lesion that appeared flat, velvety and with uniformly red appearance
b) Granular erythroplakia – red lesions with granular surface
c) Speckled erythroplakia /erythroleukoplakia – predominantly red lesion speckled with white spots.[11]

Lichen planus: Lichen planus (LP) is a chronic autoimmune muccocutaneous disease which can affect the oral mucosa, skin, nail, genital mucosa. Clinical variations of oral LP are reticular, papular, plaque-like, erosive, atrophic, bullous. Lesions are usually bilateral.[12] Clinically its is presented by wickham striae, white papules, erythema, erosion and blisters. It is commonly seen in dorsum of tongue, buccal mucosa and gingiva.[13]

Oral sub mucus fibrosis: OSMF Clinical features consist of blanching, intolerance of spicy food, Petechiae, Depapillation of tongue, Oral ulceration, Leathery mucosa, Taste disturbance in the early stages and later stages consist of Fibrous bands, Trismus,Flattening of palate, "Hockey stick" uvula Reduction in tongue mobility, Xerostomia.[14] It has a malignant transformation rate of about 0.5-7.4 percent.[14,15]

Common symptoms in a patient presenting with oral potentially malignant disorders are: burning sensation in the mouth after eating spicy food stuff and drinking warm water, difficulty in opening of mouth (Trismus), oral pain, excessive salivation, change of gustatory sensation, hearing loss due to stenosis of Eustachian tube.

Common sites involved are: Buccal mucosa ,Tongue, Lingual pouch, Oral commissure, Palates, Lips, Alveolar mucosa, Labial mucosa etc.
Statistical analysis: Data was analysed using SPSS-24. For descriptive statistics: frequency, percentage, proportion, mean and standard deviation, graphs and cross tabs were used to present study results. P value <0.05 was considered significant.

RESULTS AND DISCUSSION:

TABLE-1 shows distribution of participants according to socio demographic profile. It shows that majority of the participants (26.7%) were in age group 26-35 years. On observing the distribution according to sex, majority of the participants were females (56.1%).It was also observed that 57.1% were from Rural areas and (42.9%) from Urban areas.

Table-1: Distribution of study population according to socio demographic profile N=1078

Characteristics	Frequency (N = 1078)	Percentage (%)
AGE IN YEARS		
18-25	281	26.1
26-35	288	26.7
36-45	204	18.9
46-55	135	12.5
56-65	107	09.9
>65	63	05.9
Total	**1078**	**100**
SEX		
Male	474	43.9
Female	604	56.1
Total	**1078**	**100**
EDUCATION		
Illiterate	521	48.3
Just literate	12	01.1
Primary	108	10.0
Middle	155	14.4
Secondary	81	07.5
Intermediate	102	09.5
Graduation and above	85	07.9
Technical & professional	14	01.3
Total	**1078**	**100**

As observed from fig 1, we can see that majority of the participants were illiterate (48.8%) and (7.9%) were graduate and above. By occupation (49.5%) of the respondents were homemakers while (19.4%) were Daily wagers.

Table 2: Distribution of study participants according to the presence and absence of Clinical Features

As observed in table 2, clinical features of OPMD were present in 25.3% of the participants.

Presenting clinical features	Number(n)	Percent (%)
Present	273	25.3
Absent	805	74.7
Total	1078	100

Clinical features were not present in 74.1% of the participants, and in whom they were present, the maximum percentage were of burning sensation on eating spicy and hot food stuffs. (Table 3 & fig. 3)

Table-3 Presence of clinical features of Oral potentially malignant disorders (OPMD)

Clinical features	Frequency (n)	Percent (%)
Burning sensation on eating spicy and hot food stuff	260	24.1
Difficulty in opening of mouth	2	0.2
Burning sensation+difficulty in opening mouth	11	1.0
No clinical feature present	805	74.7
Total	**1078**	**100**

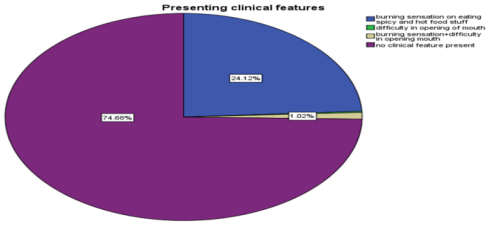

Table-4: Overall prevalence of OPMD in participants

OPMD	Frequency (n)	Percent (%)
Present	206	19.1
Absent	872	80.9
Total	**1078**	**100**

From the above table (table 4) it can be observed that overall prevalence of OPMD in the participants was 19.1%.

Table 5: Prevalence of type of OPMD in study population

OPMD	Number(n)	Percentage (%)
Leukoplakia	179	16.6
Erythroplakia	7	0.6
OSMF	6	0.6
Oral lichen planus	4	0.4
OSMF+ Erythroplakia	2	0.2
OSMF +Leukoplakia	8	0.7
No abnormality present	872	80.9
Total	**1078**	**100**

From table 5 we can observe the prevalence of different types of Oral Potentially Malignant Disorders (OPMD). Leukoplakia (16.6%) was found to be most common and oral Lichen planus (0.4%) were least prevalent.

Table-6 Relation between age and OPMD N=1078

Age	Oral Potentially Malignant Disorder		Total [Number(%)]
	Present [Number(%)]	Absent [Number(%)]	
18-25 years	22(7.8)	259(92.2)	281(100)
26-35years	51(17.7)	237(82.3)	288(100)
36-45 years	56(27.5)	148(72.5)	204(100)
46-55 years	39(28.9)	96(71.1)	135(100)
56-65 years	27(25.2)	80(74.8)	107(100)
>65 years	11(17.5)	52(82.5)	63(100)
χ^2-43.739, df=5, p<0.001, Significant			

Table-6 shows relationship between Age and Oral Potentially Malignant Disorders (OPMD). OPMD was found to be more prevalent in age group of 46-55 years (28.9%) compared to the younger age group where it was found in (7.8%) of the population. Around (27.5%) OPMD occurred in the age group 36-45 years. Age was found to be significantly associated with Oral potentially malignant disorders (p<0.001) in our study.

Table-7 Relation between sex and OPMD N=1078

Sex	Oral Potentially Malignant Disorder		Total [Number (%)]
	Present [Number (%)]	Absent [Number (%)]	
Male	159(33.5)	315(66.5)	474(100)
Female	47(7.8)	557(92.2)	604(100)
χ^2= 114.035, df=1, p<0.001, Significant			

In our study OPMD was more prevalent in males (33.5%) as compared to females (7.8%). Sex is significantly associated with OPMD (P<0.001) (table-7).

The study findings suggest that the overall prevalence of oral potentially malignant disorders was 19.1%, Leukoplakia (16.6%) was the most prevalent type of Oral Potentially Malignant Disorders while Lichen planus was the least prevalent type of Oral Potentially Malignant Disorders in rural and urban study population.

CONCLUSION:

In our study, it was found that majority population were of males who were involved in taking tobacco or tobacco containing products and accounted for 43.9% of the total participants which was more common in the age group of 18-25 years. Significant association was found between oral potentially malignant disorders and gender and oral potentially malignant disorders and age group, respectively. (p<0.05).

Lesions like leukoplakia, erythroplakia, lichen planus, oral sucb mucus fibrosis were frequently found the study, of which lichen planus accounted for the maximum (16.6%) of the cases.

LIMITATIONS:

Limitations to the study include:

1. Biopsy, the confirmatory test for confirming the malignant potency in the lesions, was not done.
2. Being self-reported study except for clinical examination part, results have to be taken with caution.
3. A qualitative component to the study would have helped to understand people perceptions about OPMDs and utilization of oral health care in detail.

RECOMMENDATIONS:

The Community interventions should mainly focus on protecting youth from tobacco, maintaining smoke free public places and promoting health literacy on tobacco related matters. Legislative measure should be undertaken wherein the sale of tobacco is prohibited for youngsters.There is a need for obligatory role of health professionals including dental surgeons & specialists to bring the behavioral changes at individual by proper counseling to de-addiction therapies among the patients indulged in tobacco usage. In order to facilitate effective participation of dental professionals, concrete steps are needed to be implemented at various levels. For planning of national or regional oral health promotion programs as well as to prevent and treat oral health problems, baseline data about magnitude of the problem is required.

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