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PREVALENCE OF ORAL POTENTIALLY MALIGNANT DISORDERS IN REALTION TO THE USE OF CHEWABLE TOBACCO

Community Medicine

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ABSTRACT

Introduction: Tobacco has been considered as a major etiological factor in the development of oral potentially malignant disorders. Any form of chewable tobacco is as significant in relation to oral carcinoma as is Smoked tobacco.

Objective: To find out the association of Chewable tobacco with Oral Potentially Malignant Disorders.

Material Methods: it was a cross sectional descriptive study through a self-structured questionnaire and oral examination by the observer in a sample of 1078 participants.

Observations: Chewable tobacco increases 7.5 times more risk for having OPMD than non-chewers. Gutkha is the most common form of smokeless tobacco 115(55.8%) and supari 1(11.1%) is the least common form of smokeless tobacco present in the participants with. Strong association was seen between frequency of tobacco use and occurrence of oral precancerous lesions OPMD.

Conclusions and Recommendations: The use of smokeless tobacco was significantly associated with Oral potentially malignant disorders.IEC activities and BCC can form major pillars in control of tobacco use along with the legislative measures.

KEYWORDS

Chewable tobacco, Oral Potentially Malignant Disorders, Carcinoma

INTRODUCTION:

The prevalence of carcinoma is growing day by day and the risk of being diagnosed with cancer increases with age. Oral Potentially Malignant Disorder's (OPMDs) have traditionally shown a predilection for males. But recent studies show a 1:1 male to female ratio. This could be due to the increased habitual use of tobacco and alcohol among women.

Average age of population affected with Oral Potentially Malignant Disorder's is 50-69yrs, occurring about five years earlier than oral cancer. However recent studies show that 15% of PMDs affect the younger age group of 30 years.

Most common sites for PMDs in India are buccal mucosa followed by tongue, palate and floor of the mouth.

Tobacco has been considered as a major etiological factor in the development of oral potentially malignant disorders. A variety of oral potentially malignant disorders have been reported in literature with the consumption of tobacco **(Thomas et al, 2003).** In Asians, oral potentially malignant disorders are known to be associated with cigarette smoking, excess alcohol consumption, and areca quid chewing **(Chung et al., 2005)**

Hence, this study was performed to find out the association of Chewable tobacco with Oral Potentially Malignant Disorders..

MATERIALAND METHODS:

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 residentsof the field practice areas, ≥18 years of age with potentially malignant disorders of oral cavity, and 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.

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.

OBSERVATIONS AND DISCUSSION:

Table-1: Relation between use of smokeless tobacco and OPMD N=1078

Use of smokeless tobacco	Oral Potentially Malignant Disorder		Total [Number (%)]
	Present [Number (%)]	Absent [Number (%)]	
Ever chewing	165(50.6)	161(49.4)	326(100)
Never chewing	41(5.5)	711(94.5)	752(100)
χ^2=300.058, df=1, p<0.001, significant, OR=7.543, 95% CI=(4.820-11-805)			

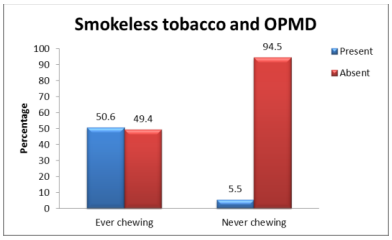

Fig. 1

Table-1 and Fig. 1 shows the relationship between use of smokeless tobacco and OPMD. In our study majority of the participants were ever chewers 165 (50.6%). OR 7.543 indicate that chewing tobacco increases 7.543 times more risk for having OPMD than non-chewers. In this case use of smokeless tobacco is significantly associated with OPMD (P<0.001). Similar study was conducted by **Malhotra D et al,2016** shows that prevalence of oral precancer (leukoplakia, submucous fibrosis, erythroplakia, lichen planus, smokers palate and verrucous hyperplasia) was 3.17% in non- tobacco pan masala users.

In this study tobacco chewing is significantly associated with OPMD. **Kumar et al., (2015)** found a statistically non-signification association between consumption of Betel quid and OPMD (P>0.05). However, the association between consumption of Areca nut and OPMD is statistically significant (p<0.05). Majority of precancerous lesions were found in smokeless form users **Ambeker et al., (2014).** Similar findings were reported by **Uplap et al. and Thomas et al** in their respective studies. **Kavarodi et al., (2013)** find that the Red and white lesions were highly significant (i.e. 1.2 % and 10.9% respectively) in the subjects with pan chewing. **Kwatra et al., (2012)** conducted a study among 1414 workers in Maharashtra and found that among total chewing study population, tobacco chewers (67.01%) were approximately twice of the Areca nut chewers (32.99%). The association between Areca nut chewers, tobacco chewers and non chewers with respect to development of oral lesion was highly significant.(p<0.05).

Table-2: Relation between type of smokeless tobacco and OPMD N=1078

Type of smokeless tobacco	Oral Potentially Malignant Disorder		Total [Number(%)]
	Present [Number (%)]	Absent [Number (%)]	
Paan(Betel quid)	15(41.6)	21(58.4)	36(100)
Paan masala/Khaini	26(52)	24(48)	50(100)
Gutkha	115(55.8)	91(44.2)	206(100)
Supari	1(11.1)	8(88.9)	9(100)
Mishri(Gulmanjan)	6(24)	19(76)	25(100)
Do not chew	41(5.5)	711(94.5)	752(100)
χ^2-320.413, df=5, p<0.001,Significant			

Table-2 shows the relation between type of smokeless tobacco and OPMD. It is evident from the table that majority of the participants uses Gutkha as the most common form of smokeless tobacco 115(55.8%) and supari 1(11.1%) is the least common form of smokeless tobacco present in the participants with OPMD**. Varshney et al., (2015)** found a significant association between smokeless tobacco and OPMD. He reported that Pan chewing habit were present in 14 out of 22 cases of OSMF (66.67%). **Kwatra et al., (2012)** found the prevalence of using Areca nut chewing is the most common type of chewable type of smokeless tobacco in their study. Out of total 320 areca nut chewers OPMD present in 21.08 % of participants. The association between areca nut chewing and prevalence of OPMD is statistically highly significant.(P<0.0001). **Kaur et al., (2015)** conducted a cross sectional study consists of , 21,671 patients visiting the Department of Dentistry, G.G.S Medical College, Faridkot (Punjab). In this study it was found that the use of smokeless tobacco [zarda 47 (88.69%), gutka (5.67%)] is more common in patients with precancerous lesion as compared to smoking tobacco .The association between type of smokeless tobacco and prevalence of OPMD is significant(p<0.05). **Nigam et al., (2013)** reported that Gutkha chewing was the most common abusive habits (42/63) amongst OSMF patients.

Table-3: Relation between duration of taking smokeless tobacco and OPMD N=1078

Duration of taking smokeless tobacco	Oral Potentially Malignant Disorder		Total [Number (%)]
	Present [Number (%)]	Absent [Number (%)]	
1-10 years	37(24)	117(76)	154(100)
11-20 years	125(74.4)	43(25.6)	168(100)
21-30 years	3(75)	1(25)	4(100)
Do not use	41(5.5)	711(94.5)	752(100)
χ^2-433.540, df=3, p<0.001, Significant			

Table-3 shows relation between duration of smokeless tobacco and OPMD in study population. In our study there is strong association between duration of smokeless tobacco and OPMD (P<0.05). As it is evident from the table that as duration of chewing tobacco number of occurrences of OPMD increases significantly from 24% to 74% in our study population. Similarly, **Joshi et al., (2016)** also found a significantly association between duration of chewing tobacco and OPMD (p<0.05). Strong association was seen between frequency of tobacco use and occurrence of oral precancerous lesions (x2 = 36.9, p = 0.001). Most of the precancerous lesions were seen in 6-10 years users. **Ambeker et al., (2014**). Similar findings were reported by **Sujatha et al**. **Kwatra et al., (2012)** found that there is s significant association between duration and frequency of 1-5 times (χ2 =72.04, df=1, p<0.0001). Significant increase in prevalence with increase in the frequency of tobacco habit (p<0.05) (**Gupta et al, 1984).**

TABLE-4: Relation between frequency smokeless tobacco (times/day) and OPMD N=1078

Frequency of taking smokeless tobacco (Times/day)	Oral Potentially Malignant Disorder		Total [Number (%)]
	Present [Number (%)]	Absent [Number (%)]	
1-10	157(48.5)	167(51.5)	324(100)
11-20	9(75)	3 (25)	12 (100)
Do not use	41(5.5)	711(94.5)	752(100)
χ^2-296.810, df=2, p<0.001,Significant			

Table-29 shows relation between use of smokeless tobacco/day and OPMD. It shows a significant association between use of smokeless tobacco/day and OPMD. As we see from this table as we increases frequency of smokeless tobacco (times/day) occurrence of OPMD increases from 48.5% to 75%. **Ambeker et al., (2014)** reported that there is Strong association was seen between frequency of tobacco use and occurrence of oral precancerous lesions (x2 = 36.9, p = 0.001). Most of the precancerous lesions were seen in 6-10 times per day users. **Kwatra et al., (2012)** found that as the frequency of smokeless tobacco/day increased, the frequency prevalence of OPMD increased by1-5 times (χ^2=72.04, df=1, p<0.0001), 6-10 times (χ^2=80.59, df=1, p<0.0001).

Table-5: Relation between habit of smokeless tobacco and OPMD N=1078

Habit of taking smokeless tobacco	Oral Potentially Malignant Disorder		Total [Number (%)]
	Present [Number (%)]	Absent [Number (%)]	
Current users	149 (53.2)	133 (46.8)	282 (100)
Past	11(34.4)	21(65.6)	32(100)
Occasional user	1(8.3)	11(91.7)	12(100)
Do not use	41(5.5)	711(94.5)	752(100)
χ^2=307.938,df=3,p<0.001,Significant			

Table-5 shows relation between habit of use of smokeless tobacco and OPMD. There is significant association between habit of use of smokeless tobacco and OPMD. Current users have more occurrence of OPMD (53.2%) while occasional users have less occurrence 8.3%.

Aslesh et al., (2015) reported from their study that Mucosal lesions were significantly more prevalent among current users of smokeless tobacco when compared to non user (44.6% vs 12.3%, (P value = 0.001).

Table-6: Relation between swallowing of tobacco fluid and OPMD N=1078

Swallowing of tobacco fluids	Oral Potentially Malignant Disorder		Total [Number (%)]
	Present [Number (%)]	Absent [Number (%)]	
Chewing but not swallow	124 (42.4)	168(57.6)	292 (100)
Occasionally swallow	28(82.4)	6 (17.6)	34 (100)
Do not use	41(5.5)	711(94.5)	752(100)
χ^2=216.42,df=2,p<0.001,Significant			

Table-6 shows the relation between swallowing of tobacco fluid and prevalence of OPMD. It is evident from the table that there statistically significant association between swallowing of tobacco fluid and prevalence of OPMD (P<0.05). In the participants who were chewing tobacco without swallowing of fluid occurrence of OPMD is 42.4 %, where as in the participants who were chewing tobacco and occasionally swallow the fluid OPMD occurred in 82.4 % of them. **Kumar et al, (2015)** found that A significantly higher prevalence (value < 0.0001) of oral potentially malignant disorders was found in individuals who were ever consumers of areca nut chewing (32.9%)

Table-7: Relation between keeping tobacco products overnight in mouth and OPMDN==1078

Keeping tobacco products overnight in mouth	Oral potentially malignant disorder		Total [number (%)]
	Present [number (%)]	Absent [number (%)]	
Chewing and keep	17(85)	3(15)	20(100)
Chewing but do not keep	140(45.7)	166(44.3)	306(100)
Do not use	41(5.5)	711(94.5)	752(100)
χ^2=295.703,df=2,p<0.001,significant			

Table-32 shows relation between keeping tobacco product overnight in mouth and OPMD. It is evident from table that OPMD is present in 85% participants who keep smokeless tobacco in their mouth over night.There is significant association between keeping tobacco in mouth overnight and OPMD. **Thomas et al., (2003)** reported that. Keeping the tobacco chewing fluid overnight did not elevate the ORs further among tobacco chewers.

CONCLUSIONS AND RECOMMENDATIONS:

The use of smokeless tobacco was significantly associated with Oral potentially malignant disorders. The most common form of chewable tobacco causing the most number of cases was found to be Gutka. There was a linear increase in presence of Oral potentially malignant disorder and duration of use of chewable tobacco.

Legislative measure should be undertaken wherein the sale of tobacco is prohibited for youngsters.

It is the 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. Also, emphasis should be made on routine examination of oral mucosa among the general population.

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