An epidemiological study for evaluation of oral precancerous lesions, conditions and oral cancer among Belgaum population with tobacco habits.

Vaishali Keluskar and Alka Kale

Department of Oral Medicine and Radiology, K.L.E.V.K. Institute of Dental Sciences, Belgaum
Address for correspondence: Dr Vaishali Keluskar , Professor and Head, Department of Oral Medicine and Radiology , K.L.E.V.K...Institute of Dental Sciences, Belgaum

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ABSTRACT

Tobacco use is a major health hazard in India. Tobacco is used for smoking as well as in smokeless form. Tobacco contains chemical nicotine that causes a tingly or good feeling but that feeling only lasts for a little while. Nicotine is addictive. Research on the effects of tobacco on oral mucosa has proved that tobacco in all forms is carcinogenic and poses health risks to everyone exposed to it. The present study was conducted with an objective of building a database on prevalence of tobacco use amongst Belgaum people and the incidence of precancerous lesions, conditions and oral cancer amongst these people, for planning tobacco control intervention.

Key Words - Tobacco, Smoking, Precancer condition, Oral cancer

INTRODUCTION

Tobacco use is a major global public health problem. It is the leading preventable cause of premature death worldwide. Tobacco is used in smoke and smokeless form in India. Smoking of tobacco is mainly in the form of bidi, followed by cigarette, hukkah, chillum, chutta etc. Some common forms of smokeless tobacco are gutkha, khaini, Manipuri tobacco, mava, mishri etc. The prevalence of tobacco use is higher among teenagers and young adults than among other adult population. Association of tobacco related habits has been observed with cancers of oral cavity, pharynx, larynx and esophagus and precancerous lesions and conditions. Smoking is an important risk factor that is not only related to development of oral cancer, but also increases the total cost and medical hospitalization days for oral cancer patients (Stewart et al., 2003 WarnaKulasuriya, 2005 and Han et al 2010)

Different countries have adopted various strategies for control of its use. To initiate any control measures it is important to have information on tobacco use status in that particular region. Studies have revealed the prevalence of tobacco in both smoke and smokeless form in Karnataka to be 32.7% among men and 8.5% among women (Chaudhry1993). The use of tobacco is often social Information on overall tobacco use would help in understanding the real dimensions of the epidemic and establish methods to eradicate the same. The high risk groups for intervention can also be identified. The tobacco use prevalence, type of tobacco production and the amount of tobacco consumption are important aspects of health problems related to tobacco use. Quite often reliable data on prevalence of tobacco use are not available. (Linda 2001). According to Gupta (1980, 1989) and Schulten (1993) the epidemiological surveys have revealed a close association between tobacco usage and precancerous lesions, conditions and oral cancer. According to these there are 1.2 billion smokers and tobacco users worldwide. In Indian scenario there are 180 million tobacco users and 8 lakhs deaths are attributed to tobacco use per year (Chaudhry1993, Stewart et al., 2003). Oral cancer is rated as 5th most common cancer in men and 7th in women. The frequency of oral cancer is 2nd most common in India. Oral cancer is poorly understood by society in general and is frequently ignored in its early stages, when it is most amenable to treatment. We as dentists play a vital role in the early detection and prevention of oral cancer. The association of tobacco and oral cancer was observed in India as early as 1902 by Niblock. A tremendous amount of biological research on the effects of tobacco on oral mucosa has been done...
in India. This research has proved that tobacco in all forms is carcinogenic and poses health risks to everyone exposed to it (Stewart et al, 2003).

Oral cancer control in population can be achieved by eventually eliminating tobacco usage through control programmes. Tobacco use surveys have been conducted in different areas of India to gather data on the use of tobacco by the population, awareness of the health effects of tobacco, attitudes towards tobacco use and efforts to discourage its use (Chaudhry, 1993). The pattern of tobacco use varies in different areas. Since there is insufficient data existing regarding tobacco use in Karnataka, this project is basically carried out amongst Belgaum population. This particular study was carried out with the main objective of collecting data regarding tobacco use in Belgaum district for planning tobacco cessation programmes to eradicate it completely and prevent Oral cancer. It has been tried to determine the distribution of tobacco chewing and smoking habits amongst Belgaum population along with the rate of prevalence of oral cancer and precancerous lesions and conditions amongst tobacco users, histological changes in oral mucosa among patients with clinically normal appearing mucosa among patients with no obvious clinical changes after vital staining with toluidine blue followed by biopsy.

MATERIALS & METHODS

Patients reporting to the Department of oral medicine and radiology, KLES institute of Dental sciences Belgaum with the habit of using tobacco either in smoke or smokeless form were part of the study. An informed consent was obtained. A detailed case history proforma was duly filled and the subjects were documented under various categories like type, frequency and duration of habit and the type of lesion to evaluate cancerous and precancerous lesions and conditions. Patients with clinically visible lesions were subjected to biopsy for histopathological confirmation. Patients without any apparent mucosal changes were subjected to vital staining with toluidine blue followed by biopsy to check for any dysplastic changes. Data were statistically analyzed and documented.

RESULTS

Total no of 758 patients reported with tobacco habits in the age group of 20 – 60 yrs. The no of male patients were 729 (Table 1 & Graph 1) and female patients were 29 (Table 2 & Graph 2). Among the male patients maximum were tobacco chewers 159 (21.8%) followed by bidi smokers 106 (14.54%) and cigarette smokers 102 (13.9%) and combination was noted in 275 patients (37.72%). Among these tobacco chewers and smokers were 4 (0.5%), tobacco and pan chewers were 42 (5.76%), pan and betel nut chewers were 36 (4.9%) and tobacco, pan and betel nut chewers were 168 (23%) Among female patients tobacco chewers were 15 (51.7%), pan chewers were 1(3.4%), tobacco and betel nut chewers were 3 (10.3%), tobacco and pan chewers were 6 (20.6%), pan and betel nut chewers were 2 (6.8%) and tobacco, betel nut and pan chewers were 2 (6.8%). Histopathologically confirmed cases of Leukoplakia were 102 (13.4%), Oral sub mucous fibrosis were 215 (28.3%) and Oral cancer were 48 (6.3%) (Table 3 & Graph 3). The most significant histological observation was hyperkeratosis with mild dysplasia in 38 patients (5.01%) with no obvious clinical changes after vital staining with toluidine blue followed by biopsy.

DISCUSSION

The incidence of Oral cancer is increasing worldwide. Malignant neoplasms in and around the oral cavity represents the most common potentially lethal disease with which we the dental professionals deal. The association of tobacco with oral cancer has been proved as early as 1902 by Niblok. Tobacco habits vary in different areas. The present study was conducted with an objective of building a database on prevalence of tobacco use amongst Belgaum people and the incidence of precancerous lesions, conditions and oral cancer amongst these people, for planning tobacco control intervention. A thorough clinical and histopathological examination was carried out in individuals visiting the Dept of Oral Medicine and Radiology with tobacco habits. Tobacco habits are practiced in either smoking or chewing form. The clinical data was collected in the prescribed proforma for people using smoke or smokeless tobacco and tabulated.

A total number of 758 patients reported with tobacco habits. Among these 729 were males and females were 29. This clearly indicates the preponderance of tobacco habits among males. This is consistent with other studies which have reported prevalence of tobacco habits in 32.7% males and 8.5% females in Karnataka (Chaudhry, 1993). A higher frequency among males can also be attributed to the prevailing Indian social scenario, where males being the wage earner are privileged to spend their earnings for their pleasure. It is also noted that the use of tobacco is often social, prompted by friends or other role models. These may later lead to addiction and long term use. As males are more socially active as compared to females this is more prevalent in them. This is consistent with previous studies (Gupta 1989, Chaudhry 1993, Stewart et al 2003).

Among men tobacco chewing habits were maximum 159 (21.8%) followed by smokers. This can be attributed to the easy availability of smokeless tobacco and its cost effectively. Similar observation was made by Gupta et al in 1989. Bidi smoking is more prevalent 106 (14.5%) as
compared to cigarette smoking 102 (13.9%) which is comparable with the previous studies. Use of smokeless tobacco was predominant in women and men below 30 yrs, but smoking was predominant in men above 30 years. Combination of smoke and smokeless tobacco use was the highest. 275 (37.7%) Among females all were tobacco chewers and they also belonged to low socioeconomic status.

The prevalence of precancerous lesions like Leukoplakia was 102 (13.4%), precancerous conditions like OSMF was 215 (28.3%) and oral cancer was 48 (6.3%) The incidence of oral submucous fibrosis and oral cancer in younger age group can be attributed to increased consumption of gutkha an extremely popular tobacco product in India. Epidemiological data indicates that pan masala containing tobacco is an important cause of OSMF and oral cancer (Gupta 1989, Chaudhry 1993, Jeng et al, 2001).

According to a recent study conducted by Mehrotra et al (2010) a high prevalence of oral soft tissue lesions by rampant misuse of variety of addictive substances in the community of Vidisha district in the state of Madhya Pradesh has been reported. Toluidine blue serves the important purpose of accelerating biopsy by selecting the areas of the lesion more likely to be demonstrated as malignancy or dysplasia (Mirian et al, 2001).

A striking finding was dysplastic changes in patients without apparent clinical changes after vital staining with toluidine blue followed by biopsy. This is a significant finding which indicates that gradual mucosal changes in the oral mucosa occur before the actual manifestation of clinical lesions. Early intervention at this stage by quitting the habits can avoid further progression. Tobacco chewers revealed maximum dysplastic changes as is evident by various studies (Schulten et al. 1993). This study also supports an earlier observation that in India most oral cancers are preceded by oral precancerous lesions and conditions and is more prevalent among tobacco users (Chaudhry 2001, Jeng et al 2001, Stewart et al, 2003).

SUMMARY AND CONCLUSION
According to Misra et al (2009) incidence of premalignant lesions of the oral cavity is increasing and showing a predilection for younger age groups, due to the increase in intake of pan masala and other related intoxicants. Tobacco has been identified as the major etiologic factor in the initiation and progression of oral cancer (Linda et al 2001). Tobacco use is highly prevalent in various forms in our country (Jeng et al 2001). In depth study of tobacco use to highlight its hazards and enhance the knowledge is a must. Clinical and histopathological screening of patients with habits and without any apparent clinical lesions plays a vital role for early intervention and prevention of oral cancer (Micah et al 2004).

Tobacco cessation is an essential component for reducing the mortality and morbidity related to its use, as, its ignorance may lead to an additional 160 million global deaths by 2050. Tobacco cessation provides the most immediate benefits of tobacco control and maximizes the advantages for a tobacco user who quits the habit (Stewart et al 2003). Emphasis has to be laid on creating global awareness among the masses about the hazards of tobacco so as to eradicate its use completely. Smoking is an important risk factor that is not only related to development of oral cancer, but also increases the total cost and medical hospitalization days for oral cancer patients (Han et al 2010) Overcoming tobacco dependence is not a single event. It is a complex and continuous process which includes an array of physical, social and psychologic factors. Involvement of health professionals in tobacco cessation at all levels is essential for prevention of tobacco related morbidity and mortality (Micah et al 2004).

Table 1: Incidence of tobacco habits among male patients.

<table>
<thead>
<tr>
<th>Tobacco Chewers</th>
<th>Cigarette Smokers</th>
<th>Bidi Smokers</th>
<th>Betel Nut Chewers</th>
<th>Pan Chewers</th>
<th>Tobacco &amp; Pan Chewers</th>
<th>Tobacco &amp; Pan &amp; Betel Nut Chewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>159</td>
<td>102</td>
<td>106</td>
<td>111</td>
<td>0</td>
<td>4</td>
<td>42</td>
</tr>
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<td></td>
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<td>36</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>168</td>
</tr>
</tbody>
</table>
Table 2: Incidence of tobacco habits among female patients.

<table>
<thead>
<tr>
<th>Tobacco Chewers</th>
<th>Betel Nut Chewers</th>
<th>Pan Chewers</th>
<th>Tobacco &amp; Pan Chewers &amp; Betel Nut Chewers</th>
<th>Tobacco &amp; Pan Chewers</th>
<th>Pan &amp; Betel Nut Chewers</th>
<th>Tobacco, Pan &amp; Betel Nut Chewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 3: Incidence of premalignant lesions, conditions and oral cancer among tobacco users.

<table>
<thead>
<tr>
<th>Leukoplakia</th>
<th>OSMF</th>
<th>Oral Cancer</th>
<th>Mild Dysplasia</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>215</td>
<td>48</td>
<td>38</td>
</tr>
</tbody>
</table>

Figure 1: Comparison of tobacco habits among male patients.

Figure 2: Comparison of tobacco habits among female patients.
Figure 3- Comparison of premalignant lesions, conditions oral cancer and mild dyspalsia among patients.

References


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