Original Article

DOI: 10.21276/ijchmr.2017.3.1.02

A Retrospective Correlational Analysis Between Oral Squamous Cell Carcinoma And Tobacco Habit: A Hospital Based Survey

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Abstract

Background: Squamous cell carcinoma is the most common form of carcinoma of oral cavity and ranks 12th most common cancer globally. The aim of this study was to evaluate the prevalence of oral squamous cell carcinoma among patients with habit of any form of tobacco of various age groups and to establish the most common site of oral cancer. **Materials and Method:** A retrospective study was conducted among 200 patients reporting to the institution with habit of tobacco. All the details from the patient was recorded in a predesigned proforma and was analysed using Chi square test. **Results:** In our study, 200 patients reported over a period of 1 year, 80 females and 120 males. The most common age group affected were in the 5th and 6th decade of life. 90% of the patients were tobacco consumers. Gingiva and buccal mucosa were the commonly affected sites. **Conclusion:** Tobacco consumption is regarded as the most common risk factor associated with oral cancer. The incidence of oral squamous cancer was found to be more in men than in women

Keywords: Carcinoma; Gingiva; Tobacco

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This article may be cited as:Kak V,Singla YK, Sidhu S, Gupta J, Singh FA Retrospective Correlational Analysis Between Oral Squamous Cell Carcinoma And Tobacco Habit: A Hospital Based Survey.Int J Com Health and Med Res 2017;3(1):3-6

Article Received: 02-11-16 **Accepted On:** 20-11-2016

INTRODUCTION

in Squamous cell carcinoma as defined by Pindborg et al is "a malignant epithelial neoplasm exhibiting squamous differentiation as characterized by the formation of keratin pearls and/ or presence of intercellular bridges." It is the most common form of carcinoma of oral cavity and ranks 12th most common cancer globally.[1] India with its diverse cultures and health beliefs and habits carries a domain of rise in risk of oral cancer. Many risk factors are involved in the causation of oral cancer amongst which tobacco use tops the list. Tobacco in its various forms whether smokeless or smoking like khaini, Manipuri, surti, cigarette, bidi, chuta, hukka act as an independent and main risk factor for oral squamous cell carcinoma. In India, it is estimated that 75,000-80,000 new oral cancer cases develop annually.[2] If the current smoking pattern persists, tobacco is set to cause about one third of all the deaths.[3] Majority of tobacco consuming population are illiterate, rural and less exposed to western type of mass media and is addicted to local or unbranded tobacco preparation, hence oral squamous cell carcinoma is common in people of low socioeconomic status.[4] Through this study we aim to evaluate the prevalence of oral squamous cell carcinoma among males and females of various age groups having habit of any form of

tobacco and to establish the most common site of oral cancer.

MATERIALS AND METHOD

A hospital based retrospective study was conducted in an institution at Himachal Pradesh from the time period of July 2014 to August 2015. All the cases of oral squamous cell carcinoma between the age group of 32 years to 78 years reporting to the institution during this period were included in the study. A total of 200 patients with habit of tobacco reported to the department during this period. Demographic details of the patient including age, sex, and name were entered in a predesigned proforma. Patient's tobacco habit irrespective of the form and the site of carcinoma were also noted in that. All the data obtained from the patients was kept confidential and a prior informed consent was obtained. SPSS software was used to perform the analysis. Chi square test was applied to compare the two groups and the obtained p value if less than 0.05($p<0.05$) was considered significant.

RESULTS:

A total of 200 patients reported to the institution during the period of 1 year. Out of them majority (120) were males and rest (80) were females with a Male: Female = 1.5:1. All the patients were aged between 32-78 years.Among the affected patients (table 1, graph 1), 26.6% (n= 32) were males aged between 46-55 years as compared to 17.7% (n= 14) females in the same age group. About 23.7% 9 (n=22) females were affected in the age group of 56-65 years compared to 20.8 % (n= 25) males of same age group. Only 5% (n=6) males aged greater than 75 years were affected by carcinoma compared to 17.5% (n=14) females of same age. Only 3 female patients were affected by oral cancer in the age group less than 35 years compared to 8.3% (n = 10) males in same category. Most commonly patients were affected between 5th and 6th decade of life. On applying chi square test, there was a significant difference ($p<0.05$) between the affected male and female patients.Gingiva was the most commonly affected site (34.5%) which was followed by buccal mucosa (18.5%). Palate (4.5%) was amongst the least commonly affected sites. The commonly affected sites in decreasing order are: gingival (34.5%) > buccal mucosa (18.5%) > tongue (15.5%) > floor of mouth (13%) > lips (7.5%) > palate (4.5%)(table 2, graph 2).

Table1: Age Wise Distribution Of Oral Carcinoma Patients

AGE	MALE (n =120)	FEMALE(n=80
<35 yrs	10(8.3%)	3(3.7%)
35-45 yrs	28(23.3%)	8(10%)
46-55 yrs	32(26.6%)	14(17.5%)
56-65 yrs	25(20.8%)	22(23.7%)
66-75 yrs	19(15.8%)	19(23.3%)
>75 yrs	6(5%)	14(17.5%)

Graph:1: Age Wise Distribution Of Oral Carcinoma Patients

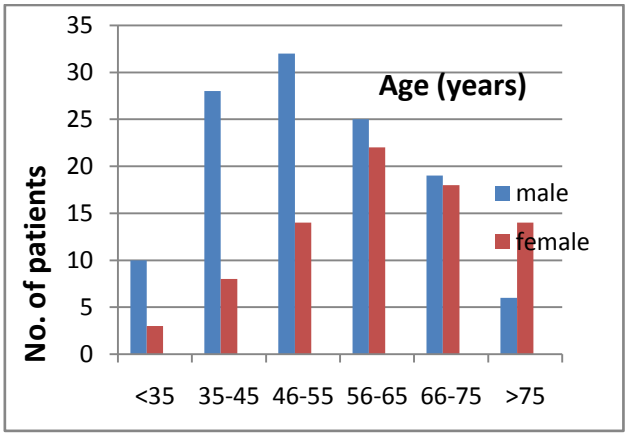
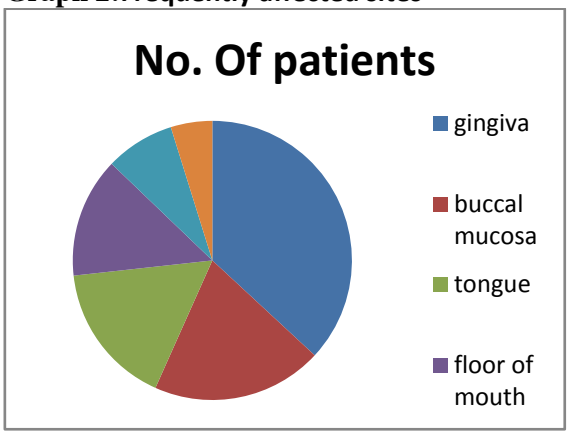


Table 2:Frequently affected sites

ANATOMICAL SITE	N (%)
Gingiva	69(34.5%)
Buccal mucosa	37(18.5%)
Tongue	31(15.5%)
Floor of mouth	26(13%)
Lips	15(7.5%)
Palate	9(4.5%)
Others	13(6.5%)

Graph 2:Frequently affected sites



DISCUSSION

Cancer is one of the most common cause of death among adults.[5] Severe alcoholism, use of tobacco like cigarettes, smokeless tobacco, and betel nut chewing and human papilloma virus are the most common risk factors for oral cancer.[6] In India, 90-95% of oral cancers are squamous cell carcinoma.[7] Complete knowledge about the risk factors causing oral cancer can help in early diagnosis and immediate treatment of patients which in turn leds to a better prognosis. The prognosis of oral cancer is inversely proportional to the stage of disease detection. Tobacco is amongst the leading factors involved in increasing the risk of oral cancer. Tobacco- a plant native to America, introduced in India in 1605 by Portuguese, was initially used for ceremonial and medicinal purposes.[8] Since then use of tobacco has increased tremendously and it is being exploited by men and women all over the world. India is the third largest tobacco producing country (13%) after china (40%) and USA (15%) and 9th largest exporter of tobacco.[9] The Indian national sample survey revealed that 35% men and 12% women use tobacco in one form or another.[10,11]The male to female distribution (1.5:1) in our study was similar to the study conducted by Pinholt EM et al[12] (1.2:1) and various other authors like Oliver AJ et al[13], Silverman S et al[14] reported similar ratios of 1.5:1 and 1.48:1 respectively. This divergence in incidence of oral cancer among males and females may be due to the easy habituation amongst males. In India, 20 per 100,000 populations are affected by oral cancer which accounts for about 30% all types of cancer.[15] Over 5 people die every hour everyday because of oral cancer.[16] In a study from Eastern India, mean age was 52.07 years.[17] In our study the most common age group that was affected was 46-55 years amongst males and 56-65 years amongst females. Sankaranarayan R et al[18] found that peak age of occurrence (5th decade of life) in India is at least a decade earlier than that described in Western literature. A study was conducted by Singh MP et al[19] also suggested that prevalence of oral squamous cell carcinoma was significantly higher in males than in females. In our study, patients reporting to the department were tobacco consumers of any form. Sanghui LD et al[20] observed that the risk ratio of oral cancer were four fold in chewers, two fold in smokers and four fold in both chewers and smokers. The risk has been attributed to the presence of tobacco-specific N-nitrosamines (TSNAs) that are considered to be the most common carcinogens in smokeless products and cigarette smoke. A study from the WHO International Agency for Research on Cancer concluded that smokeless tobacco users have 80% higher risk of developing oral cancer and a 60% higher risk of developing pancreatic and esophageal cancer.[21]Tobacco habit among Indians is different from the rest of the world. In China, Japan, Europe, USA and Latin America,tobacco use is equally prevalent, but over 95% users simply smoke cigarettes. In India, four types of tobacco use are common in various forms, namely, smoking(bidi/cigarette/hukka/chutta/chilam), chewing (betel/gutka/khaini), snuffing and rubbing (gul/tooth powder).[10]The most common site of oral cancer in our study was gingival and buccal mucosa and the least common sites were palate and lips. A study conducted by Singh MP et al,[19] also showed the most frequently affected sites to be buccal mucosa and gingivobuccal sulcus. A study conducted in Western UP, India reported buccal mucosa to be the most common site followed by retromolar area, floor of mouth, lateral border of tongue, labial mucosa and palate.[22] This may be due to the fact that people keep tobacco in close proximity to the gingival and buccal mucosa and it acts as a constant source of physical and chemical irritation.Our study did not analyse various other risk factors like alcohol consumption, HPV, oral hygiene, socioeconomic status etc. Majority of patients presented at later stages of disease due to lack of knowledge and delay in seeking professional care. If the quality of health services is improved, life expectancy of the patients with oral cancer can also be improved.

CONCLUSION

According to the above study, tobacco consumption is the most common risk factor involved in causation of oral cancer. The common age group that was affected was 5th and 6th decade of life with male predominance. With the incidence rates increasing at an alarming rate, there is a need to create awareness amongst people by organising oral health programmes, providing information about risk factors involved. Professional care facilities should be made available at rural and urban levels for earlier disease detection to improve the prognosis of the disease.

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Source of support: Nil
Conflict of interest: None declared