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Socio-Demographic Factors and Oral Cancer: A Clinical Study

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Research Article

ABSTRACT

A study was carried out to study the socio demographic profile of oral cancer and its grades at a Tertiary care hospital,VIMS, Bellary for a period of one year. Clinical data collected including the age, sex of the patient and intra oral site of cancer, defined clinical history of the patients were recorded and histopathology result was noted. Out of 50 patients, majority belongs to 50 – 59 years and risk factors were present in 96% of patients. Histological grading was applied on each case and based on Broder's clasification to differentiation oral squmous cell carcinoma into well, Moderate, poor squamous cell carcinoma. Nearly 80% of oral sqaumous cell carcinomas were diagnosed as well differentiated and moderately differentiated sqaumous cell carcinoma sqaumous cell carcinoma is the predominant type of oral cancer and Microscopy is very essential to diagnose oral cancer in an elderly people and given awareness to the patients and to the public society.

Introduction

In many Asian cultures where chewing betel, paan and areca is common, oral cancer represents up to 40% of all cancers. It may arise as a primary lesion originating in any of the oral tissues, by metastasis from a distant site of origin, or by extension from a neighboring anatomical structure. A tissue biopsy and microscopic examination of the lesion confirms the diagnosis and malignancy of oral cancer.

Globally, oral cancer is the sixth most common cancer with an incidence of more than 300,000 cases yearly, of which 62% occur in developing countries [1]. In India it is the most common cancer in men and third most common cancer in women, with incidence rates per 100,000 people as 12.8 and 7.5 in men and women respectively [2,3]. The main risk factors are tobacco in the form of chewing and smoking and alcohol consumption [4,5].

Oral cancers include cancers of lips, tongue, gums, floor of mouth, cheek mucosa, palate and other parts of mouth as per international classification of diseases [6]. The prevalence of lip cancer appears to be decreasing, but the prevalence of intra-oral cancer appears to be rising in many countries, especially in younger people [7]. Incisional biopsy, when appropriately stained, is essential to confirm the diagnosis. A biopsy must be performed on any oral mucosal lesion suggestive of carcinoma, including any ulcer that does not heal within 2 – 3 weeks [8].

In India, chewing "Pan" [a combination of betel vine leaf, Areca nut, Lime, and usually tobacco] and reverse smoking are the major etiological factors. Tobacco present in the betel quid is the major carcinogen, although there seems some relationship to the source of slaked lime and the areca nut itself. Other factors like betel leaf, HPV infection, nutrition deficiencies, sepsis, and sharp tooth are also suggested of playing etiological role in malignancy.

The high incidence of Oral cancer is attributable largely to the habit of chewing betel nuts, tobacco, and pan a very common practice in South East Asia.. There is good evidence that tobaccos in all

forms and alcohol use, aging are the major risk factors in the development of oral cancer [9,10]. Although smoking tobacco offers a more pronounced risk of oral cancer combining tobacco and alcohol results in an increased cancer incidence many times, greater than the additive effect because of their synergistic action [11]. The evidence that smokeless tobacco also causes oral cancer was confirmed recently the International Agencies for Research on cancer [12].

Oral squamous cell carcinoma (OSCC) normally occurs in the elderly men during the fifth to eighth decades of life and is rarely seen in young people. However, recently the incidence of oral cancer in younger age group is increasing due to easy availability of gutkas and pan masalas which are packed appealingly to the present generation [13,14].

The majority of these are seen in very advanced stage and treatment of these conditions are very demanding with surgery and radiotherapy being the main modality of therapy along with chemotherapy.Early diagnosis and timely intervention can change the natural history of the tumour.

METHODOLOGY

A cross sectional study was carried out at Vijayanagar Institute of Medical Sciences, Bellary, Karnataka from January 2013 to December 2014 for a period of one year to study the profile of oral cancer patients. After obtaining the informed written consent, a thorough history was noted and clinical examination was done. Primary data was collected by interviewing the patients or guardians and secondary data was gathered from lab and pathological reports. The data was collected in a pre tested semi structured questionnaire. Totally data was collected from 50 cases. The sampling size adopted was non probability purposive random sampling technique. Data was entered in Microsoft excel and was analyzed using SPSS 21.0 software. Descriptive statistics were used for analysis and data was presented as proportions. Wherever comparison between two groups was made, Chi square test was applied to find significance. The significance level was set to 5% and type II error was fixed to 0.20, hence the power of the study is 80%.

RESULTS

Totally 100 patients with oral cancer were studied and it was observed that oral cancer was more commonly found in the age group of 40 – 49 years (34%), followed by 50 – 59 years (30%), 30 – 39 years (16%), 60 - 69 years (12%) and 70 – 79 years (4%). Only 4% of oral cancer was found in the younger age group of 20 – 29 years. Patients comprised of both males and females. Males were 52% and females were 48% of total study subjects. There was no much difference in proportion of males and females.

Table 1: Socio demographic factors

Socio demographic factors	Frequency	Percentage
Age		
20 – 29 years	02	04%
30 – 39 years	08	16%
40 – 49 years	17	34%
50 – 59 years	15	30%
60 – 69 years	06	12%
70 – 79 years	02	04%
Gender		
Male	26	52%
Female	24	48%
Education		
<SSLC	42	84%
>SSLC	08	16%
Occupation		
Unskilled	38	76%
Semi skilled	10	20%
Skilled	02	04%
Residence		
Urban	16	32%
Rural	34	64%
Risk factors		
Present	48	96%
absent	02	04%

Majority of the study subjects were studied less than 10th standard (84%) and unskilled labours (76%). Residential status revealed that, 64% of the subjects were from rural area. At least one risk factor

like smoking, alcohol and other established risk factors of oral cancer was found among 96% of study subjects.

Table 2: Age and Histopathological grade

Age group	Histopathological grade			Total
	Well differentiated	Moderately differentiated	Poorly differentiated	
20 – 29 years	02 (100%)	00	00	02 (100%)
30 – 39 years	05 (62.5%)	03 (37.5%)	00	08 (100%)
40 – 49 years	06 (35.2%)	06 (35.2%)	05 (29.6%)	17 (100%)
50 – 59 years	01 (06.6%)	09 (60.0%)	05 (33.4%)	15 (100%)
60 – 69 years	04 (66.7%)	02 (33.3%)	00	06 (100%)
70 – 79 years	02 (100%)	00	00	02 (100%)
Total	20 (40%)	20 (40%)	10 (20%)	50 (100%)

Chi square value – 32.9   df- 10   p value-0.001

In the age group of 20 -29 years, all the lesions were well differentiated (100%).

In the age group of 30 -39 years, 62.5% of lesions were well differentiated and 37.5% were moderately differentiated.

In the age group of 40 -49 years, 35.2% of lesions were well differentiated , 35.2% were moderately differentiated and 29.6% were poorly differentiated.

In the age group of 50 -59 years, 6.6%% of lesions were well differentiated , 60% were moderately differentiated and 33.4% were poorly differentiated.

In the age group of 60 -69 years, 66.7% of lesions were well differentiated and 33.3% were moderately differentiated.

In the age group of 70 -79 years, all the lesions were well differentiated (100%).

The relation between age and histopathological grading is found to be statistically significant.

Table 3: Gender and Histopathological grade

Gender	Histopathological grade			Total
	Well differentiated	Moderately differentiated	Poorly differentiated	
Male	07 (26.9%)	13 (50.0%)	06 (23.1%)	26 (100%)
Female	13 (54.1%)	07 (29.1%)	04 (16.8%)	24 (100%)
Total	20 (40%)	20 (40%)	10 (20%)	50 (100%)

Chi square value – 4.38   df- 2   p value-0.11

Among male patients, most common type of histopathological grade was moderately differentiated (50%), followed by well differentiated (26.9%) and poorly differentiated (23.1%)

Among female patients, most common type of histopathological grade was well differentiated (54.1%), followed by moderately differentiated (29.1%) and poorly differentiated (16.8%)

DISCUSSION

Oral cancer is the cancer of the oral mucosa and lip (excluding the skin). Consumption of tobacco as smoking of bidis and cigarettes or as smokeless forms like tobacco chewing or mishri (tobacco used as tooth cleanser) is the main etiological agent of oral cancer [15]. Studies have shown that the usage of tobacco in various forms is mounting at the rate of 2 to 3% yearly, and it is expected to cause about 13% of deaths in India by 2020 [16].

In the present study, oral cancer was more commonly found in the age group of 40 – 49 years (34%), followed by 50 – 59 years (30%), 30 – 39 years (16%), 60 - 69 years (12%) and 70 – 79 years (4%). Dhar PK et al [17] reported maximum incidence (35.7%) in the age range of 51-60 years. According to Dias et al [18], the average age of diagnosis of oral malignancy was 62 years, with a standard deviation of 12 years. Brandizzi D et al [19] reported the mean age of oral malignancy to be 62 years, with a range of 19

to 95 years. According to Wahid A et al [20] in Pakistan, the commonest age group affected in oral cavity squamous cell carcinoma was 41-50 years (38%), followed by 51-60 years (34%).

Gangane et al (2007) and Saraswathi et al reported majority of oral malignancies in the 50 to 59 years age group and 40 to 61 years age group respectively [21,22]. Thus, proving OSCC to be common in older adults

In a study by Patel MM et al [23] 75% of patients were males. Mehrotra Ravi et al [24] from Allahabad, India reported a male: female ratio of 3.27:1. Iype EM et al (14) from Trivendrum, Kerala found a higher preponderance in males (70%) compared to females (30%). But in our study there is no much difference.

In India, when compared to men, females are less indulged in these habits. Our findings are similar to that of Iype et al (2001) who reported 2.3:1 ratio and Agrawal and Rajderkar who reported 3.57:1 [25].

In our study 40% of tumours were well differentiated. 40% were moderately differentiated and 20% were poorly differentiated.

In the study by Patel MM [23], 60.12% of the tumours were well differentiated. 38.7% were moderately differentiated and 1.18% were poorly differentiated.

Mehrotra R et al [24] also observed maximum number of well differentaiated Squamous cell carcinoma.

Iype EM et al [25] found well differentiated squamous cell carcinoma in 52.6% cases, moderately differentiated in 34.2% and poorly differentiated in 8.9% of cases.

In the study by Dias GS et al [26], majority of the tumours of oral cavity were well differentiated tumours.

The more proportion of cases being well-differentiated might be due to increasing awareness of oral cancer among people of this region coupled with cancer awareness programs by the government. Our findings were similar to that of Iype et al [25] who reported that 52.6% of their patients had well-differentiated tumors. However, Ayaz [27] reported that majority of OSCC in their study were moderately differentiated.

CONCLUSION

Early diagnosis and treatment is necessary in oral cancer as studies have shown that a cure rate of over 90% can be achieved in early stages.

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