ORIGINAL RESEARCH

Gender-Based Disparities in Oral Cancer Incidence: A Comparative Study in Coimbatore.

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Abstract

Introduction: Oral cancer is recognized as one of the foremost causes of morbidity and mortality around the world. It is the sixth most common cancer globally and oral squamous cell carcinoma accounts for 90% of these cases. The main cause of oral cancer has been attributed to the use of tobacco in its various forms, along with the use of alcohol

Aim And Objectives: The focal aim of our study is to rule out the possible differences in women and men suffering from oral cancer based on socio demographic parameters, site distribution as well as distribution of tobacco habits, its frequency and duration.

Materials and Methods: This is a cross-sectional study directed to rule out differences between men and women oral cancer patients. One hundred oral Cancer patients, those who gave consent for the study, irrespective of their age, sex, occupation and income were included for the study

Results: One hundred oral cancer patients were included in our study. Among them 72 were men and 28 were women. Most of the women patients in our study were housewives (81%). Among men, manual labour was the most predominant occupation (70%)

Conclusion: In conclusion, we have found that women get a diagnosis of oral cancer earlier than men in our study. Majority of women oral cancer patients had chewing habits and the majority of men oral cancer patients had smoking habits.

Keywords: Oral cancer, Gender distribution, Occupational differences, Tobacco habits, Oral changes.

Introduction

Oral cancer is recognized as one of the foremost causes of morbidity and mortality around the world. It is the sixth most common cancer globally and oral squamous cell carcinoma accounts for 90% of these cases.[1-3] As per study of GLOBOCAN-2018 around the globe, one among six women will be affected by cancer during their lifetime and one among eleven women die from cancer.[4] In our country, both gender combined, breast cancer is the most frequently observed cancer. In terms of prevalence, breast cancer is followed by cancers of the lip and oral cavity[5]. More than 90% of the oral cancers occur in patients over the age of 45, with a male predilection.[6,7] The main cause of oral cancer has been attributed to the use of tobacco in its various forms, along with the use of alcohol[8].

It is deliberated that use of tobacco and alcohol consumption is very less among women, but various studies have shown that men: women ratio of oral cancer is rapidly decreasing due to chance in lifestyle of women.[9] Few studies says that women start smoking at late age and their health consequences are more than men.[10]

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A study conducted in 1996 by Muscat et al. to evaluate gender alterations and risk for oral cancer. They found that women with smoking habits had a higher threat of developing oral cancer compared to men smokers. Moreover, they also found that, there was higher risk among women for developing oral cancer with the habit of smoking and alcohol consumption when compared to men.[11]

A study by Vatanasapt et al. in 2011 on the people of Thailand, and found the rate of oral cancer prevalence to be significantly higher in women compared to men.[12]

The focal aim of our study is to rule out the possible differences in women and men suffering from oral cancer based on socio demographic parameters, site distribution as well as distribution of tobacco habits, its frequency and duration.

Materials and Methods

This is a cross-sectional study directed to rule out differences between men and women oral cancer patients. The study procedures were approved by the Institutional Ethics Committee. (ID: EC/2023/1005/CR-57)

Cancer patients, those who gave consent for the study, irrespective of their age, sex, occupation and income were included for the study. Subjects, without histopathologically proven oral cancer, immunocompromised patients and unwilling patients were excluded. Frequency and duration of habits were also noted.

Intraoral examination was done using mouth mirror, tongue depressor and artificial light to note size, site, extent and severity of the lesion. The data collected in this manner was put into a chart and statistically analysed. All these data were coded and analysed using the Statistical Package for the Social Sciences (SPSS, ver. 17.0; SPSS Inc, Chicago, IL, USA). The level of statistical significance was kept at $p \leq 0.05$.

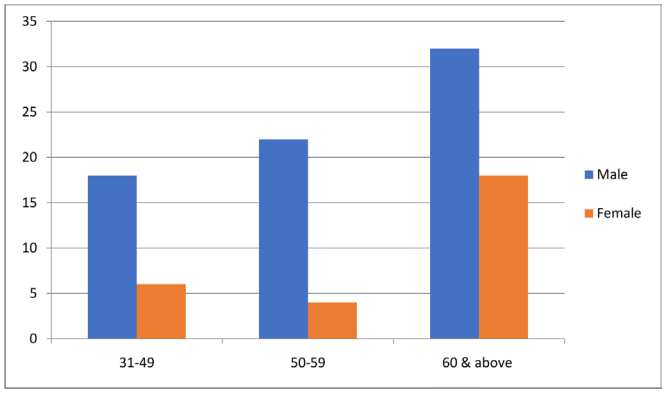

Fig. 1: Gender based age group distribution of oral cancer patients

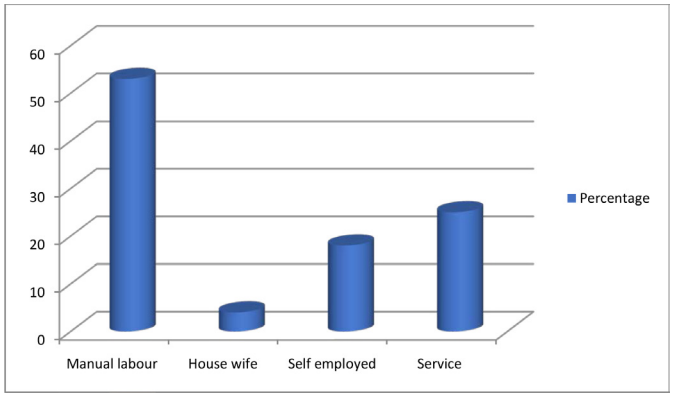

Fig. 2: Occupation wise distribution of oral cancer patients

Results

One hundred oral cancer patients were included in our study. Among them 72 were men and 28 were women. Hence, the men: women ratio was 2.5:1.

Among 100 oral cancer patients 72 patients were males and 28 patients were females of which 24 patients were between 31 - 49 years, 26 patients were between 50 - 59 years and 50 patients were above 60 years of age. In our study, the highest numbers of oral cancer patients were from the age group of above 60 years, followed by from age group 50–59.

In this present study, the most prevalent age group for men and women cancer patients was above 60 years. Gender-based age group distribution of oral cancer patients in this study is compared in Figure 1.

The most predominant occupation among oral cancer patients in this study was manual labour. The occupation-based distribution of oral cancer patients is described in Figure 2.

Most of the women patients in our study were housewives (81%). Among men, manual labour was the most predominant occupation (70%)

Maximum number of male patients in our study population was higher secondary educated (36%) and maximum numbers of women patients were also higher secondary educated (35.7%) total uneducated (26%). Gender-wise distribution of education and occupation is described in Table 1.

In our study, among the oral cancer patients; buccal mucosa and buccal vestibule were the most prevalent sites (36%), followed by tongue (24%). The site distribution of oral cancer patients is described in Figure 3.

For men as well as women, buccal mucosa-vestibule was the most prevalent site for oral cancer. Women had more oral cancer in buccal mucosa-vestibule compared to men in buccal mucosa and vestibule.

15% of all oral cancer patients had no history of habits in our study. 46.4% of all women oral cancer patients and 2.7% of

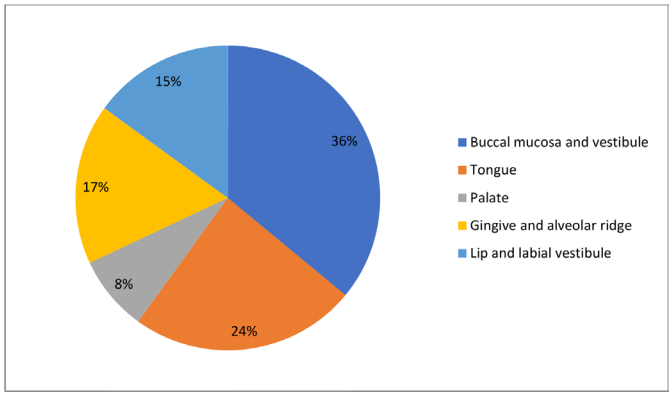

Fig. 3: Site distribution of oral cancer patients.

all men oral cancer patients had no history of cancer-causing habits. 65.5% patients had individual habits; among them 57% had smoking habits and 60% had chewing habits. Among all our patients, 46% had combinations of habits.

Among male oral cancer patients, smoking (77.7%) was the most predominant cancer-causing habit and among women oral cancer patients, chewing (64.2%) was the most predominant cancer causing habit. Gender-based distribution of different habits among oral cancer patients is described in Table 2.

Oral cancer patients who never had any habits, among them most were women. Patients (both the gender) who never used any habit product, for them the most prevalent site for oral cancer was tongue. Among smokers (men as well as women) also tongue was the supreme common site for oral cancer.

Men as well as women, who had chewing habits for them buccal mucosa and vestibule, was the most common oral cancer site. No women oral cancer patients had drinking habits. Oral cancer patients who had drinking habits, among them buccal mucosa and vestibule, was the most predominant site for oral cancer.

Oral cancer patients (both men and women), who had collective smoking and chewing habits, among them; buccal mucosa and vestibule, was the most common site for oral cancer. In the study, we could not find any females who had combined smoking and drinking, chewing and drinking or all three habits.

Buccal mucosa and vestibule were the most common site for men who had all three habits as well as combined chewing and drinking habits.

Discussion

The present world is very much disquiet about oral cancer in Asia, due to the prevalence of tobacco habits either in smoked or smokeless form. Along with tobacco; alcohol consumption and betel quid chewing is also cause of concern in respect to oral cancer.[13] Despite recent developments in diagnosis and management the 5-year survival rate for oral cancer does not progress much.

Lin et al. in 2020 studied differences of men patients and women patients suffering from oral squamous cell carcinoma and found the mean age for diagnosis of oral cancer among women was 61.7 years and for men was 56.9 years. According to them, men get diagnosed for oral cancer earlier than women.[14]

Most of the study says that the mean age of oral cancer is more than 60 years[15], but recent Indian studies have shown an increase in incidence of oral cancer in younger population with mean age of 51 years.[16] Aruna et al. in 2011 reported mean age of 55 years based on their studies.

We have also found the results favouring these studies. As per our study, Men get diagnosed for oral cancer earlier than Women.

Satgunaseelan et al. in 2020 suggested that there were two discrete groups of SCC in women. These were older women with oral SCC in other areas of oral cavity and young women with SCC in tongue.[17] As per them, increased oral SCC among older women could be due to traditional risk factors of habits, but minority of oral cancer affected younger women had habits or the exposure time was insufficient to cause oral cancer.[17]

Statistics from Head and Neck Cancer Epidemiology Consortium also declare that tongue cancer in women below 45 is increasing.[18]

In our study, the percentage of oral cancer diagnosis among women was more from age groups of 40–59 years and 50–59 whereas oral cancer was diagnosed more among men from the age group of 60–69 years. This could be the reason behind the decreased mean age of diagnosis of oral cancer among women in our study.

Chen et al. in their studies found men: women oral cancer patients was 51:1[19]; Lin et al. in their studies also found men-women ratio for oral cancer was 20:1, but Aruna et al. found less gender discrepancy (2:1) among oral cancer patients. In our study, the men: women ratio for oral cancer patients was 2.5:1.

In our study, many patients had individual habits; among them 56% had smoking habits and 42% had chewing habits. 23% of patients were found who had drinking habits as individual habits. Among all our patients, 44% had a history

Table 1: Gender wise distribution of education

Education	Male	Female	Total count
	%	%	%
Uneducated	18	8	26
Primary school	7	3	10
Secondary	9	4	13
Higher secondary	26	10	36
Graduate	12	3	15

Table 2: Gender based distribution of different habits among oral cancer patients

Habits	Male	Female	Total count
	%	%	%
Smoking	56	1	57
Chewing	42	18	60
Drinking	23	0	23
Smoking + Drinking	18	0	18
Smoking + Chewing	14	2	16
Chewing + Drinking	12	0	12
SMOKING + DRINKING +CHEWING	9	0	09
Other habits	0	2	02
No habits	2	13	15

of using combinations of habits. In our study, only 2% of women patients had a combined habit of smoking and chewing together. Among male oral cancer patients, smoking 56% was the most predominant cancer-causing habit and among women oral cancer patients, chewing 18% was the most predominant habit.

We have established an increased percentage of individual habituated patients than the study done by Aruna et al. The exact related finding in both of our studies was that, no women oral cancer patients had drinking habits.

Based on data from our study, it was clear that men patients had more smoking habits and women patients had more Chewing habits. Among smoking products, Bidi was more commonly used than any other smoking products.

As per various studies, bidi is much more associated with cancer than cigarette; as the main stream of smoke of bidi contains nicotine and toxic agents in higher concentration than cigarette.[20]

In our study, women used mainly betel quid with tobacco as main chewing products

In our study, for men as well as women, buccal mucosa-vestibule was the most prevalent site for oral cancer, followed by tongue and gingiva-alveolar ridge and jaw.

Numerous studies have shown that occupational exposure increases risk for the development of oral cancer. Carton et al. in 2014 studied association between occupations and head and neck cancers of women and found increased risk among women street vendors and bakers.[21] In our study, most of the women cancer patients were manual labor followed by housewives

In this study, we found that among oral cancer patients manual labor was the most predominant occupation.

There are some limitations to our study. First, the data of our study were collected from only a single medical centre of Coimbatore, Tamil Nadu, India, and the people in a single state may have some particular cultural and geographical features. Moreover, a considerable amount of data on lifestyle factors, histological and imaging diagnosis of disease, treatment and follow-up data were not available. Finally, the pretty small sample size of women oral cancer patients restricted the capacity for advanced statistical analysis.

Conclusion

The present study was carried out to determine the differences of oral cancer in men and women in south India.

In conclusion, we have found that women get a diagnosis of oral cancer earlier than men in our study. Majority of women oral cancer patients had chewing habits and the majority of men oral cancer patients had smoking habits.

Dental health education activities should be introduced to increase the awareness and importance of oral health to the common public.

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