Retrospective Study

Prevalence of Oral Carcinoma According to Age - A Hospital Based Study

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ABSTRACT

Introduction: Carcinoma has a major impact on society across the world and it is majorly a negative impact on life. Carcinoma appears in diverse morphological and histological patterns making it important to know the characteristics of the disease like demographic data which includes gender and age group affected, geographical presence, commonly affected sites of the oral cavity, treatment planning and its efficacy, and other factors to provide comprehensive treatment to the patients.

Objective: The aim of this study was to find the prevalence of carcinoma according to age in patients.

Methods: Retrospective study. Data were collected by reviewing case records of 86,000 patients among which 59 subjects who satisfied the inclusion criteria such as age, gender, site of carcinoma were included in the study. Data were tabulated and statistically analyzed using SPSS Software. Both descriptive and inferential statistics were employed.

Results: Retrospective analysis showed that the prevalence of carcinoma was the highest (35.6%) among the subjects belonging to the age group of 41-50 years of age. Males (76.3%) had a higher prevalence.

Conclusion: Prevalence of carcinoma in this was noted in the mid-age group and males are most commonly affected. Proper intervention at the early stage can prevent the deterioration of one's life.

Key Words: Age, Carcinoma, Gender, Metastasis, Prevalence, Site

INTRODUCTION

Cancer/Neoplasia/Carcinoma is the abnormal growth of cells that tend to proliferate in an uncontrolled way. They can even metastasize to other parts of the body through blood/lymphatics.[1] There are certain risk factors associated with the etiology of carcinoma. They include Tobacco usage; Alcohol; Viral etiology - Human papillomavirus, Epstein Barr virus, etc; Dietary deficiencies; Genetic predisposition.[2] When the head and neck cancer is taken into consideration, the site of occurrence can be Buccal mucosa; Tongue; Palate; Pharynx; Nasopharynx; Floor of the mouth, etc.[3] Prevalence of carcinoma (specifically oral cancer) accounts for the most common cancer in India. About 50-70% of the total cancer mortality is noted; which is the highest in Asian countries.[4] The oral cancer is the sixth most common cancer worldwide.[5] The habit of chewing betel nuts rolled with lime and tobacco, a mixture is known as pan, results in prolonged contact of the carcinogen which is thought to be the principal cause of carcinoma in India.[6]

Cancer will remain a major health problem and the incidence will increase by 2020 and 2030 in both genders.[7] However, early detection and prevention will reduce this burden. Oral cavity is the most accessible for the visual examination and the role of a dentist lies in diagnosing the smallest lesion in the early stage. It is even necessary for the patient to have a regular visit to the dentist for this reason.[8] According to a study by Shalini et al.[9] reported that the number of deaths in 2012 due to carcinoma is highest in males. The preventive measures to be taken to reduce the incidence and mortality of oral cancer and for better survival rate. Because of the increasing prevalence in developing countries, cancer control measures should be prioritized.[9,10] Previously, our team had conducted numerous clinical studies[12-19] and systematic reviews[20,21] and surveys[22-26] over the past 5 years. Now we

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are focusing on retrospective study. The idea for this study stemmed from the current interest in our community.

The prevalence of carcinoma according to age is a necessary fact to be evaluated. However, the association between age and other descriptive factors can help to limit the role of carcinoma in one's life. Thus, this study aimed at assessing the prevalence of carcinoma according to age and to associate them with gender and site of occurrence.

MATERIALS AND METHODS

Study design and study setting
This retrospective cross-sectional study included 59 subjects who reported Saveetha Dental College during June 2019 - March 2020. An online database was used to retrieve the data. Ethical approval was obtained from the institutional ethical committee (Ethical approval number: SDC/SIHEC/2020/DIASDATA/0619-0320). Patients who visited the outpatient department were chosen by non-probability purposive sampling. Both males and females of the age group 30-80 years of age were included in the study.

Data Collection
Data were collected by reviewing case records of 86, 000 patients among which 59 subjects who satisfied the inclusion criteria such as age, gender, site of carcinoma were included in the study. Relevant data such as age, gender, and site of carcinoma were recorded. Repeated and incomplete data records were excluded. Data were verification by an external reviewer.

Statistical Analysis
Data were entered in Microsoft Excel Sheet and later reported to SPSS software (version 20.0) for statistical analysis. Both descriptive (percentage distribution) and inferential statistics (Chi-square test) were employed. The level of significance was fixed to be at $p < 0.05$.

RESULTS AND DISCUSSION

Descriptive Statistics
It is inferred that 28.8% of the patients belonged to the age group of 41-50 years of age [Table 1 and Figure 1]. Males have reported the highest prevalence of carcinoma according to this study. Only 23.7% of the females had carcinoma included in the study [Table 2 and Figure 2]. Buccal mucosa was the most common site for carcinoma followed by the tongue according to this study. Buccal mucosa - 35%; Tongue - 16.9%; Alveolar vestibular mucosa, retromolar region - 11.9%; Secondary metastasis - 8.5%; Labial mucosa - 3.4% was noted [Table 3 and Figure 3].

Inferential Statistics
Buccal mucosa was the most common site for the age group 41-70 years of age. Secondary metastasis was noted among 51-60 years of age. There was no statistical significance between the association of age and site of carcinoma (p-value = 0.97) [Figure 4]. It is seen that buccal mucosa was the most common site of carcinoma included in the study followed by the tongue. Statistical significance was present for the association between gender and site of carcinoma. (p-value = 0.03) [Figure 5]

A study by Siegel et al.[27] reported that males have a higher prevalence of carcinoma. This finding is in line with the present study. However, studies done by Kruse et al. and Mourad et al.[28,29] reported that females reported a higher predominance in the older age group. However, the overall consensus will agree that the males are most commonly affected. The increased M:F ratio for cancer is not unique to a particular country, population, or region.[30] This is because tobacco usage is more commonly noted among males. According to age and association of carcinoma, it was inferred that 41-50 years of age was the most affected. This mid-age association with carcinoma will have a severe impact on life. It is necessary that the patients are made aware of the ill- effects of habits or to restrain them if they had been used to the habit. Siriwardena et al.and Venturi et al.[31,32] have also reported the same in their study. Several studies have examined the risk factors for oral cancer in the young provide evidence that many younger age group subjects have never smoked or consumed alcohol, which are potent risk factors in older age; or that duration of exposure may be too short for malignant transformation to occur.[33] Thus, further research has to be evaluated for finding the root cause.

According to this study, buccal mucosa was the most commonly affected site. However, Iype et al. and Paderno et al.[34,35] reported that tongue is the common site of carcinoma followed by buccal mucosa. The etiological factor can be due to the tobacco which is most often lodged in the buccal mucosa. Sharp offending cusps can also cause carcinoma of the tongue in the long term. Elimination of the etiological factor can reduce the number of cases of carcinoma. In consideration of the patient's life expectancy functional impairment and risk of recurrence, a long-lasting follow-up should be done. However, if the patients present with any associated syndromic characteristics, suggestive family history and age of onset below 30 years may require detailed genetic counseling to better assess the disease pattern.

A cancer screening program is far more complex than undertaking an early diagnosis program. Therefore, where resources are limited, and where most cases are diagnosed in advanced stages, early diagnosis of the most frequent cancers, linked to appropriate treatment, is likely to be the best option to reduce premature deaths. Early detection programs

need to be linked to the provision of palliative care services. As an early diagnosis or screening program evolves, fewer patients will be diagnosed in advanced stages. This is particularly true for a screening program. However, even with the best screening programs, some patients will present with late-stage cancer because of a lack of adherence to the program or failure of the screening method. All these patients will require palliative care.

Cancer is a deadly disease and can be cured by surgery, chemotherapy, radiation therapy. Though there are treatments for cancer but also some side effects are there due to these treatments. Sometimes after chemotherapy or surgery, again cancer returns in some other part of the body. Using a high dose of anticancer drugs in chemotherapy treatment may cure initially but there will be a high risk of cancer again.[36]

Further long-term studies with a larger sample size and assessing the etiology and duration of offending habits to be described.

CONCLUSION

Within the limits of the current study, carcinoma is prevalent at a young age group and has a male predominance. Further awareness program to be conducted to reduce the prevalence of carcinoma. Therefore, where resources are limited, and where most cases are diagnosed in advanced stages, early diagnosis and appropriate treatment, is likely to be the best option to reduce premature mortality of patients.

Table 1: Represents the frequency and percentage of carcinoma according to age. It shows that the highest prevalence of carcinoma is among the age 41-50 years of age (35.6%) and least among the age group 71-80 years of age (3.4%).

Age (years)	Frequency	Percent
30-40	4	6.8
41-50	21	35.6
51-60	17	28.8
61-70	15	25.4
71-80	2	3.4
Total	59	100
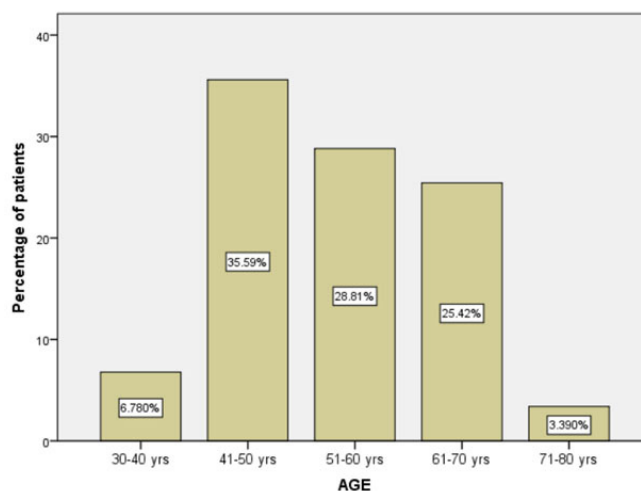
Figure 1: Bar graph depicting the percentage distribution of carcinoma according to age. X-axis denotes the age group of the patient and Y-axis denotes the percentage of patients. It shows that the highest prevalence of carcinoma is among the age 41-50 years of age (35.59%) and least among the age group 71-80 years of age (3.39%).

Table 2: Represents the frequency and percentage of carcinoma according to gender. It shows that the highest prevalence of carcinoma is among the males (76.3%) compared to females (23.7%).
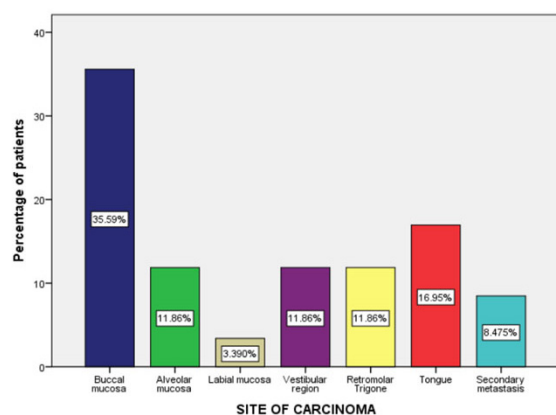
| Gender	Frequency	Percent
FEMALE	14	23.7
MALE	45	76.3
Total	59	100
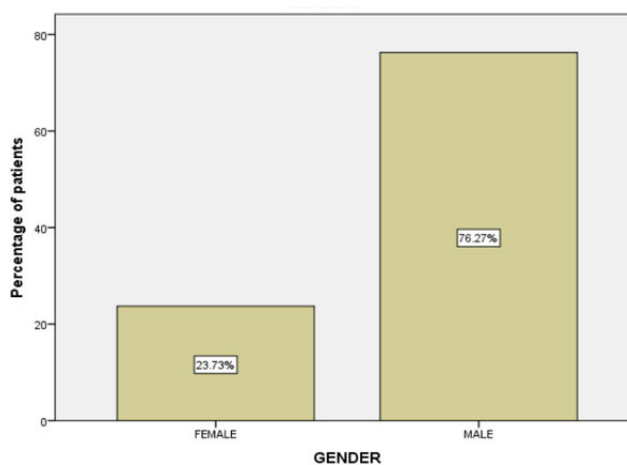
Figure 2: Bar graph depicting the percentage distribution of carcinoma according to gender. X-axis denotes the gender of the patient and Y-axis denotes the percentage of patients. It shows that the highest prevalence of carcinoma is among the males (76.3%) compared to females (23.7%).

Table 3: Represents the frequency and percentage distribution of carcinoma according to the site of occurrence. It shows that buccal mucosa (35.6%) is the most common site for carcinoma followed by the tongue (16.9%), retromolar trigone (11.9%), vestibular region (11.9%), and retromolar trigone (11.9%). It is the least in labial mucosa (3.4%).

Site of Carcinoma	Frequency	Percent
Buccal mucosa	21	35.6
Alveolar mucosa	7	11.9
Labial mucosa	2	3.4
Vestibular region	7	11.9
Retromolar trigone	7	11.9
Tongue	10	16.9
Secondary metastasis	5	8.5
Total	59	100

Figure 3: Bar graph depicting the percentage distribution of carcinoma according to gender. X-axis denotes the site of carcinoma and Y-axis denotes the percentage of sites involved. It shows that buccal mucosa (35.6%) is the most common site for carcinoma and the least occurs in labial mucosa (3.4%).
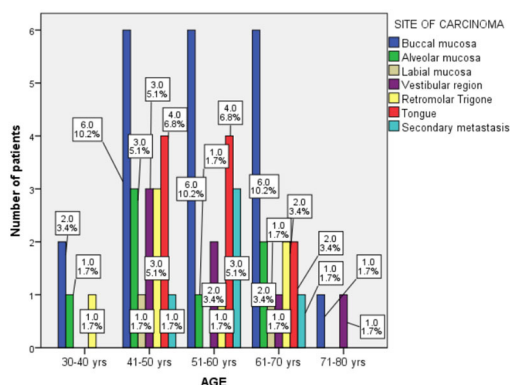
Figure 4: Bar graph depicts the association between age and site of carcinoma. X-axis denotes the age and Y-axis denotes the count of patients according to age. Pearson Chi-square test p-value: 0.97(>0.05)- not significant. Buccal mucosa was the most common site of carcinoma among all the age groups but the results showed no statistically significant association between age and site of carcinoma.
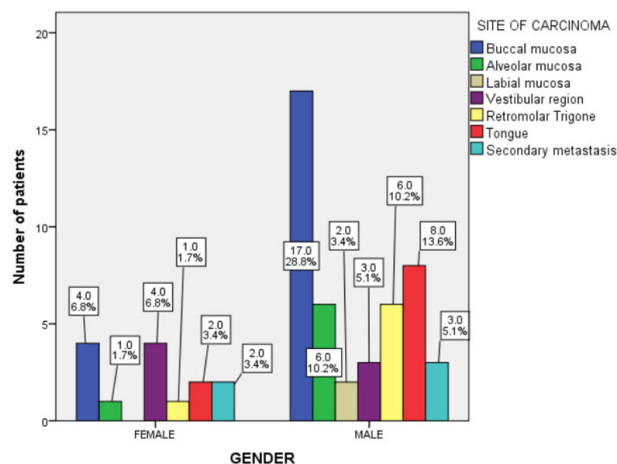
Figure 5: Bar graph depicts the association between gender and site of carcinoma. X-axis denotes the gender and Y-axis denotes the number of patients according to gender. Pearson Chi-square test p-value: 0.03 (<0.05)-statistically significant. The buccal mucosa in males was the most common site among males and females and the results were statistically significant.

Authors Contributions

Hemashree J: Performed the analysis, interpretation, and wrote the manuscript.

Dr. Kathiravan: contributed to conception, data design, analysis, interpretation, and critically revised the manuscript.

Dr. Manjari Chaudhary: participated in the study and revised the manuscript. All the three authors have discussed the results and contributed to the final manuscript.

Conflict of Interest: Nil

Source of Funding: Nil

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