



Age and Gender Predilection of Habits and Oral Cancer Among an Outpatient Population Visiting a Dental Hospital

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Article History:

Received on: 28 Sep 2020

Revised on: 15 Oct 2020

Accepted on: 28 Oct 2020

Keywords:

Chromosomal,
Carcinoma,
Dysplasia,
Epithelium,
Gene,
Mucosa,
Mutation

ABSTRACT

Oral Squamous Cell Carcinoma (OSCC) is the most common neoplasm representing more than 80% of all oral cancer cases. Squamous cell carcinoma is defined as a “malignant epithelial neoplasm exhibiting squamous differentiation as characterized by the formation of keratin and/ or the presence of intercellular bridges”. Most of the epidemiological studies have revealed that heavy smoking and alcohol intake are the most important risk factors for oral cancer. Poor dental hygiene, accompanied by tooth loss, certain oncogenic viruses have been associated with an increased risk of cancer. The purpose of this study was to analyze the gender and age predilection of habits and oral cancer among an outpatient population visiting a dental college. This was a retrospective study (2019-2020) in which data on 34 Oral Squamous Cell Carcinoma (OSCC) were investigated. The patient records were reviewed and analysed between January 2019 and March 2020. All the 34 patient data were tabulated in excel, reviewed and was classified according to the border’s grading system. Following which data was imported to SPSS software by IBM for descriptive statistical analysis and chi-square test was performed. A significant association between OSCC and age group (45-50 Years) was observed though it was statistically insignificant (p value=0.64). Males have a higher incidence of OSCC compared to females in the same age group. A significant association is observed between Gutka, Smoking and pan chewing with OSCC. OSCC is the most commonly occurring oral cancer and there is a high predilection of the OSCC with age, gender and habits. Dentists play a key role in screening, detection and treatment of oral malignancies and can help in educating the public to bring about more awareness towards prevention of Oral Cancer.

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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL3.3547>

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INTRODUCTION

Oral squamous cell carcinoma (OSCC) is a result of a multifactorial process which involves a mutation in the gene and chromosomal abnormalities (Jaya-sooriya, 2016; Abrahao, 2011). The common clinical features of OSCC is an ulcerated lesion with a central necrotic area and rolled up margins (Pires, 2013; Jayaraj *et al.*, 2015b). Although it may occur at any intraoral site, certain sites are frequently more involved than others. Common sites for OSCC are stratified squamous epithelial lining of the buc-

cal mucosa, tongue, floor of the mouth, palate and lip. There are a lot of changes in metabolites in OSCC (Sridharan *et al.*, 2017; Sherlin *et al.*, 2015). Oral tongue SCC is the most frequently affected site for OSCC (Thangaraj, 2016). There is associated dysplasia in OSCC patients (Gupta and Ramani, 2016). In OSCC, there is an abundance of stromal myofibroblasts (Jayaraj, 2015). Saliva can be used for the diagnosis of OSCC (Shree *et al.*, 2019; Sivaramakrishnan and Ramani, 2015). The most common propensity for regional metastasis is in the OSCC of the tongue (Viveka *et al.*, 2016; Hannah *et al.*, 2018). Tobacco consumption in various forms including betel quid, tobacco with lime, beedi and hookah is an important etiological factor for OSCC (Singh *et al.*, 2016; Swathy *et al.*, 2015) and also gutka. Krishna *et al.* (Krishna *et al.*, 2014; Singh *et al.*, 2016) found that risk for OSCC is higher in individuals with the habit of tobacco and smoking than those with chewing tobacco alone. Frequency and duration of alcohol and tobacco consumption play an important etiological factor for developing OSCC (Jayaraj *et al.*, 2015a; Swathy *et al.*, 2015).

Suba Priya *et al.* found that the combination of tobacco and alcohol has a very high risk for OSCC in a population-based study which was done in south India (Subapriya *et al.*, 2007). Epidemiological data on OSCC from developed and developing countries have shown different patterns in the age distribution (Subapriya *et al.*, 2007; Sheno *et al.*, 2012). In developing countries, it is predominant in individuals between the fourth and sixth decades (Chakraborty *et al.*, 2014) of life (Muir and Weiland, 1995).

A study by Krishna *et al.* (Krishna *et al.*, 2014; Singh *et al.*, 2016) in the Indian subcontinent reported that approximately 75 % of the patients with OSCC in a north Indian population were aged between 40 and 60 years. In another large study done by Singh, *et al.* (Singh *et al.*, 2016) the mean age of the patients was 48 years - and in a study on a south Indian population by Nayak, *et al.* (Nayak, 2015) the incidence of OSCC is prevalent in 40-45 and 60-65 years of age. Ranganathan *et al.* (Ranganathan *et al.*, 2015) in his study did not observe any differences in terms of age or sex between OSCC sites.

Early detection is necessary to reduce morbidity and mortality associated with oral cancers. Dentists play a major role in the early detection of oral cancers, thus increasing the survival rates of patients. The objective of this study was to find out the age of OSCC and prevalent grade of OSCC as well as an association between the habits, sex, age group and OSCC.

MATERIALS AND METHODS

The present study is a cross-sectional retrospective study, which had taken place in a university setting. Advantages of university setting are easy retrieval of records; the available data is from the same ethnicity. The disadvantages are that the study is confined to one geographical location, of limited population, less number of sample size. After getting the necessary approval of the ethics committee of the institute review board, we reviewed patient records and analysed the data of 34 patients between January 2019 and March 2020. Data were tabulated in Excel and was then imported to SPSS software by IBM, for descriptive statistical analysis. The variables were defined in SPSS and the statistical test performed (chi-square test). Independent variables being age, sex and socio-economy status and dependent variables being the grade of OSCC and habits. The type of analysis done is correlation and association by descriptive data analysis.

RESULTS AND DISCUSSION

The present study was undertaken to assess the risk of oral cancer development in relation to different habits. In this study, OSCC was the most common oral cancer observed among patients with a high incidence in males. Well, differentiated Oral Squamous Cell Carcinoma (WDSCC) was the most in number in both gender compared to Poorly Differentiated Oral Squamous Cell Carcinoma (PDSCC) in males and Moderately Differentiated Oral Squamous Cell Carcinoma (MDSCC) and PDSCC in females.

We performed a comprehensive demographic analysis of 34 patients suffering from OSCC, although our results showed that 45-50 years was the most affected age group, we observed that PDSCC was highly prevalent in the age group of 60 to 70 years. In our study, we found that the male population had a higher predilection of OSCC compared to females in the same age range in both the gender WDSCC is more in number, followed by PDSCC in males and an equal number of both PDSCC and MDSCC in females. Gutka has a strong association with OSCC in our study, followed by pan chewing. Smoking is the next important factor which has a strong association with OSCC.

The associations performed between age and different grades of OSCC (Figure 1); gender and different grades of OSCC (Figure 2); habits and different grades of OSCC (Figure 3) yielded *p* values which were not statistically significant (*p* value > 0.05).

There is a 8 to 10-fold increase in oral cancer risk in recent times in Pakistan associated with

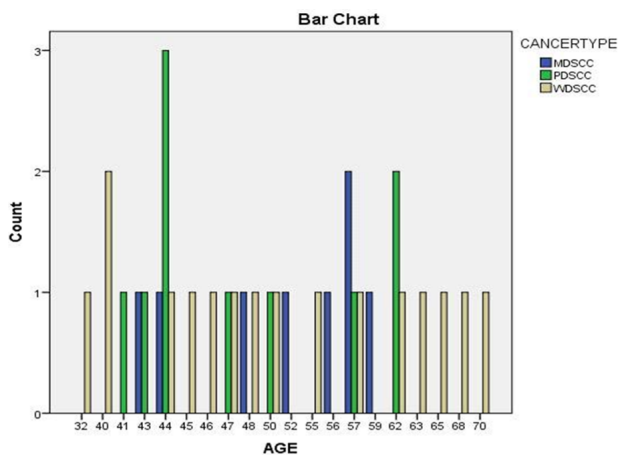


Figure 1: Bar graph depicting the association between the age of the patients with OSCC and the number of patients with different grades of OSCC.

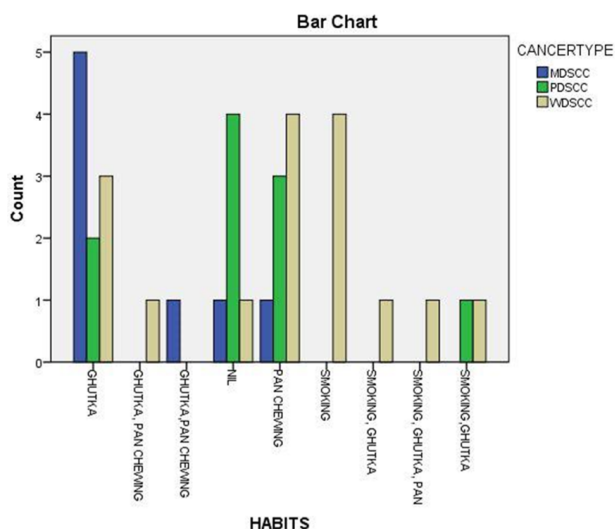


Figure 3: Bar graph depicting the association between the habits of the patients with OSCC and the number of patients with OSCC.

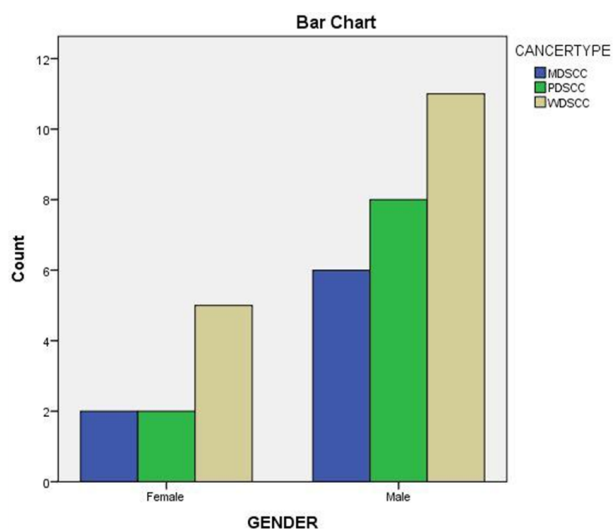


Figure 2: Bar graph depicting the association between the gender of the patients with OSCC and the number of patients with OSCC.

consumption of tobacco-related products (Awan, 2016). Risk factors play a key role in the determination of tumour sites in a particular geographical region (Rao, 2013). Studies from India, Japan, Taiwan, Thailand and Iran have reported that the most common site for carcinoma is a tongue, an estimated 42% of all oral cancer cases in these regions (Rao, 2013). Cancers involving labial mucosa are more in Myanmar region (Rao, 2013). The most frequently affected site is an indication for the carcinogenic potential of habits such as smokeless tobacco use. Various smokeless tobacco products such as gutka are placed in the buccal vestibule, a probable explanation for observed association with buccal squamous cell carcinoma. Consistent with previously reported studies, we found smokeless tobacco consumption to be a widely consumed and signifi-

cant risk factor for OSCC (Gupta and Johnson, 2014). There is a high risk of oral cancer associated with gutka and other tobacco products in a hospital-based case-control study (Gupta and Johnson, 2014; Mahapatra, 2015). In spite of increasing awareness among health care workers of ill-effects related to tobacco products, it still remains a popular health risk in Pakistan. Easy accessibility of tobacco products by even school children and their addiction to it are major problems faced by society (Awan, 2016). In smokeless tobacco products, nitrosamines have been recognized as the most potent carcinogens with their metabolites which is found in saliva and body fluids (Sand et al., 2014). A carcinogenic effect of chewable tobacco has been indicated with Herpes simplex virus 1 (HSV-1), and HPV but this association has not been validated. Some studies have shown an inversely proportional relationship between tobacco and HPV in OSCC which calls for further research to find the association between them if any.

In synchronization with our study, a 25-year review by Sarkaria and Harari (Sarkaria and Harari, 1994; Ranganathan et al., 2015) identified 14 reports with three patients younger than 40 years of age with OSCC. Bhawna Gupta et al. (Gupta and Johnson, 2014; Gheena and Ezhilarasan, 2019) Gutka uses is mostly associated with oral OSCC. Natasha Azhar et al. (Gupta and Johnson, 2014; Azhar, 2018) there is an increased risk of oral cancer associated with gutka, chewable tobacco, and smoking compared to persons without any habits. Padhiar Rutvij et al. (Ashwinirani et al., 2018), there is a high incidence of oral cancer above 40 years of age. Astrid L Kruse Gujer et al. (Kruse et al., 2011; Ashwinirani

et al., 2018) there is a higher predominance of OSCC in males. No contradictory literature finding was observed. Overall consensus agrees with the finding of the current study. The limitation of this study being a small sample size, limited population and same ethnicity. The future scope is to study a larger population and further measures that can be taken to ensure proper representation from different ethnicities and different geographical locations.

CONCLUSION

This study reveals that OSCC is the most common oral cancer we see among the patients with a high prevalence in males. WDSCC is more in number in both gender, next is PDSCC in males and MDSCC and PDSCC in females. There is a positive association between Gutka and OSCC in our study, followed by pan chewing and smoking. Within the limitations of the study, the association of OSCC with habits like gutka, pan chewing, smoking is highly prevalent in the current demographic analysis. Further studies of larger sample size on a wider scale with representation from all ethnic communities and geographic locations can provide baseline data of habit association with Oral Cancer.

Funding Support

The authors declare no funding support for this study.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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