Severity Of Oral Carcinoma With Respect To Various Addictions- A Study In WestBengal

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Abstract:
Intake of oral and smoking tobacco, alcohol, betel nut, etc., with poor oral hygiene, malnutrition, and other variables are risk factors for oral cancer. The aim of the study is to determine whether there is any connection between the use of addictions, the location of cancer, and the age of the persons chosen from West Bengal's population. 104 patients with histopathologically confirmed oral cancer from the outpatient ENT head and neck surgery and oral and maxillofacial surgery departments of the Ramakrishna Mission Seva Pratishthan in Kolkata were chosen for the study, along with 100 controls. The controls and effected individuals completed a detailed questionnaire to provide information on their age, sex, addictive behaviors, and where their lesions were located, among other things. Microsoft Excel software was used to statistically evaluate the acquired data. Together with a strong connection seen in the occurrence of oral lesions in the palate region of the buccal cavity, a substantial association was seen between the occurrence of this malignancy and the number of addictions of the persons (p value 0.03). (p value 0.06). Age, however, does not significantly correlate with this cancer, emphasizing the significance of the concerned people' frequency and length of exposure to numerous risk factors.

Keywords: oral carcinoma, addictions, oral lesion, age, incidence, occurrence

INTRODUCTION:

90% of the many types of oral cancer are oral squamous cell carcinomas (OSCC), which typically develop on the tongue, floor of the mouth, cheek lining, gums, lips, and palate. Oral cancer commonly strikes people in their middle years, with most male and female cases being diagnosed in their fourth and fifth decades of life (Singh et al., 2016). The age incidence is consistent with other studies' findings (Sharma et al., 2010, Addala et al., 2012). Yet it was discovered that people between the ages of 21 and 30 may have mouth cancer issues (Kadashetti et al., 2015). The gingivobuccal sulcus and buccal mucosa are the most frequently afflicted areas by cancer in both men and women (Singh et al., 2016). Western countries have a higher incidence of tongue and mouth cancer because to smoking and alcohol usage. Moreover, the degree of cell differentiation is influenced by the tumor's location. Oral cancer is mostly caused by oncogene interactions, which are brought on by DNA mutation. These modifications take place as a result of specific carcinogens present in predisposing risk factors, such as chewing and smoking tobacco (Kadashetti et al., 2015). This is the riskiest sort of habit because it typically has multiple types of hazardous materials mingled together; increasing the possibility of exposure to various harmful compounds at once (Gupta et al., 2014). Poor nutrition, dietary practises like eating few fruits and vegetables, lifestyle decisions, exposure to wood dust, consumption of specific salted fish, and others (NCI Factsheet 2013) are additional contributing factors. There are also some chronic infections with fungi, bacteria, and viruses, among other things (Srinivasprasad et al., 2015). The aim of the current study is to determine whether there is any connection between the prevalence of oral cancer, age, and the usage of various addictive behaviours in a population from West Bengal.

MATERIALS AND METHODS:

The respective clinicians examined the patients attending the Ramakrishna Mission Seva Pratishthan, Kolkata, Outpatient Departments of ENT Head & Neck Surgery and Oral & Maxillofacial Surgery for the presence of

oral/oropharyngeal squamous cell carcinoma in various sites of the buccal cavity, including the lips, cheeks, palate, tongue, gums, floor, and pharynx. They were given a thorough questionnaire that asked questions about their age, sex, length, and frequency of addictive behaviors. A total of 104 patients with oral cancer and 100 healthy, age- and sex-matched controls without oral lesions were chosen for the study. Microsoft Excel software was used to statistically analyze the data.

RESULTS:

The results of the study show a clear connection between the use of more addictive substances by those who are affected and the development of oral squamous cell carcinoma in those people (p value 0.036294). Both Figure 1 and Table 1 show this. The data were completely at odds with control subjects' results, which revealed no association. The results revealed no association between the concerned persons' ages and the development of this cancer, indicating that the frequency and length of exposure to different addictions were more significant in this regard (p value 0.06602). Figure 2 and Table 2 both represent this data. Although the cheek, tongue, and palate are all involved in direct exposure, the position of the lesion in the oral cavity or oropharynx has been found to be most in the check mucosa, followed by the tongue, lip, palate, and pharynx. However, the significant relationship could only be inferred in the case of the palate (p value 0.03). Figure 3, Tables 3a, 3b, 3c, Table 3d, and Table 3e show the statistical analysis.
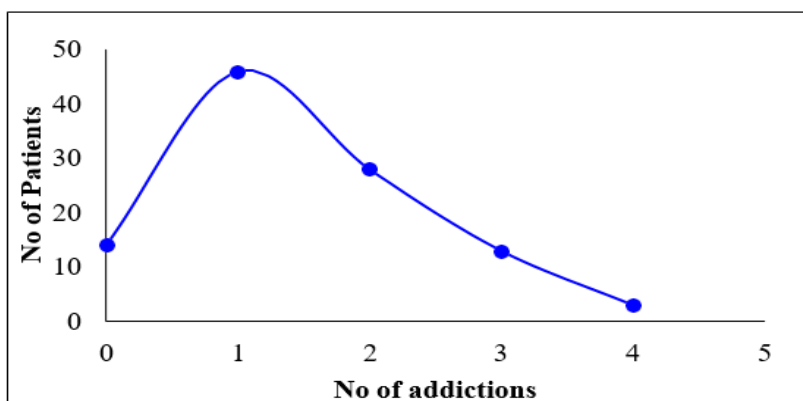

Fig 1. Graphical representation of correlation between the habits of concerned individuals of taking one or more than oneaddiction and the occurrence of oral carcinoma in the selected population

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	883.6	1	883.6	6.306924	0.036294	5.317655
Within Groups	1120.8	8	140.1			
Total	2004.4	9				

Table 1. Tabular representation of statistical analysis of correlation between the habits of concerned individuals of taking one or more than one addiction and the occurrence of oral carcinoma in the selected population

When the number of addictions is seen as an independent variable and the affected patients are viewed as a dependent variable, statistically significant differences between the two groups have been found. The results of an ANNOVA test showed that the alternative hypothesis is supported by a p-value of less than 0.05. In this situation, the variety of addictions has a big impact on thevariety of patients.
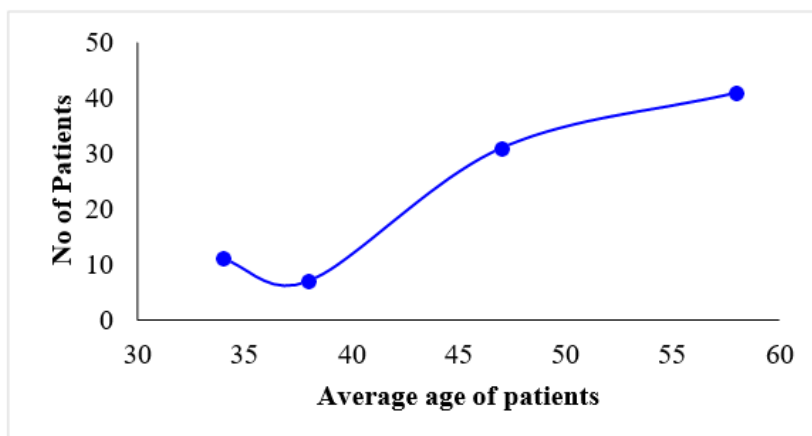

Fig 2. Graphical representation of correlation between the age of the affected individuals and the occurrence of oral carcinoma inthe selected population

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	946.125	1	946.125	5.033695	0.06602	5.987378
Within Groups	1127.75	6	187.9583			
Total	2073.875	7				

Table 2. Tabular representation of statistical analysis of correlation between the age of the affected individuals and the occurrence of oral carcinoma in the selected population

According to theory, there is a significant association between the average age of oral cancer patients and the number of narcotic addictions that patients have. With a p-value of 0.066, this study was on the cusp of significance, nonetheless. However, the development of malignancies is not significantly influenced by age alone. The length of time a person uses drugs is more important for the development of cancer.

Position of oral lesion	P value
Cheek mucosa	0.100901
Tongue	0.488053
Lip	0.250787
Palate	0.03002
Pharynx	0.536963

Table 3: Tabular representation of statistical analysis of correlation between the incidence of oral lesion in different sites of oral cavity or oropharynx in the affected individuals and the occurrence of oral carcinoma in the selected population
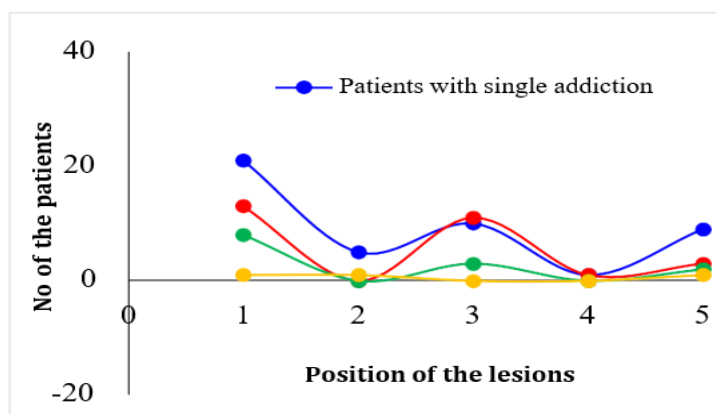

Fig 3. Graphical representation of correlation between theposition of oral lesion of the affected individuals and the occurrence of oral carcinoma in the selected population

The current study focuses on the occurrence of cancer in various areas of the oral cavity and discovered a link between this correlation and the frequency of patients with various addictions. However with a p-value of 0.03, mouth carcinoma shows a high link with the number of addictions; whilst other types of carcinomas showed only slight relevance.

DISCUSSION:
Oral squamous cell carcinoma primarily affects middle-aged Indians, according to various research. These investigations were conducted in Gujarat, as advised by Patel and Pandya (2004), Maharashtra (Madani et al., 2012; Chaturvedi et al., 2013), Karnataka, and Uttar Pradesh, where oral cancer was prevalent among young people (under 45 years of age). According to Gupta, the earlier age at which these illnesses manifest compared to cases of oral cancer may reflect a delay in the time it takes for these disorders to develop into malignancy or an increase in young people's use of predisposing behaviours as a result of urbanisation and development (1997). The gingivobuccal sulcus and buccal mucosa are the most frequently afflicted areas by cancer in both men and women (Singh et al., 2016). Western countries have a higher incidence of tongue and mouth cancer because to smoking and alcohol usage. Poorly differentiated OSCC has been observed in the tongue, floor of the mouth, and palate, while Rai and Ahmed's study in Karnataka found examples of well-differentiating OSCC in the buccal mucosa, the area most frequently damaged by tobacco use and followed by the tongue (2016). The larynx (36%) and pharynx (28.5%), however, are the two regions most frequently affected by head and neck cancer, according to a different study (Fazeli et al. 2011). Regional variances, exposure to various risk factors, and lifestyles in various parts of the world may all contribute to this observational discrepancy (Fazeli et al., 2011).

A research from South India found that in 74.8% of all OSCC cases, chewing areca nuts was at least one risk factor (Ranganathan et al., 2015, Gupta et al., 2014). The study also forecasts that the frequent aetiology of OSCC would

switch from tobacco to areca nuts, especially in Southeast Asian countries where the practise is widespread (Juntanong et al., 2016). This discusses how betel nuts can cause a range of malignant and premalignant lesions by having mutagenic and genotoxic effects on human tissues (Trivedy et al., 2002, Shah et al., 2012). Pal et al2017 .'s study on the research population in West Bengal also identified the connections between several addictions and OSCC. In a different study from Karnataka, industrial workers with a single habit (11.4%) or a combination of habits (60.4%) were significantly more likely to have mouth lesions than non-users (no mouth lesions), in addition to having at least one risk factor (Kumar et al., 2015). Many habits have been related in numerous studies to the occurrence of oral cancer and other potentially malignant oral diseases. Because one risk factor, smoking, amplifies the effects of another risk factor, chewing, this link can be explained (Kadashetti et al., 2015, Ho et al., 2007). A North Indian study has found a strong correlation between chewing behaviour and the frequency of both oral premalignant and malignant lesions (Gupta et al., 2014). The frequency, duration, and severity of the chewing behaviour must also be taken into account. Chewing tobacco or betel nuts for extended periods of time has an impact on the degree of oral carcinogenesis. Western nations have a higher smoking prevalence than does India and the rest of the Indian subcontinent, where the usage of smokeless tobacco is more prevalent (Singh et al., 2016). This is consistent with another study carried out in Kerala that found consuming smokeless tobacco greatly increased the likelihood of getting oral mucosal ulcers (Aslesh et al., 2015). Also, research indicates that rural communities in emerging countries like India chew and smoke tobacco (Agrawal et al., 2015). Oral cancer instances without smoking have been connected to betel nut use in 30% of cases, and cases with smoking have been associated to 50% of cases (WHO). About 52% of OCC cases in both sexes involve the use of smokeless tobacco in addition to cigarette usage (Boffetta et al., 2008).

CONCLUSION:

The current study has found that the number of addictive behaviours among the participants has been associated with an increase in the incidence of oral carcinoma in the chosen group. By taking into account their frequency and length of exposure to various addictions, the population with a higher number of addictions has a tendency to fall into the category of individuals suffering from carcinoma. In terms of various addictive habits, the incidence of this cancer is exactly proportional to the two parameters, regardless of age. As age was not a role in the study, it is clear that an individual's lifetime exposure to various risk factors for this carcinoma should take precedence over his age. According to reports, the young population in the affected group has likely been exposed to oral or smoking tobacco due to its accessibility. The current study takes into account several addictions, including those to alcohol, betel leaf, betel quid, and oral tobacco. Many addictive substances are ingested in very different ways, and as a result, they access different areas of the mouth cavity and thus have varied effects on those sections. The only body areas that are considerably exposed to all types of chemicals are the palate and tongue, which has had a considerable impact on the number of addictions. However, tongue cancer is less common than many other varieties, which can be explained by the fact that it has a high potential for self-regeneration, which causes a significant loss of afflicted cells. It mostly affects older persons and is quite uncommon in youngsters. However, neck cancer is frequently mistakenly identified as oropharyngeal cancer, a type of tongue cancer that develops near the base of the tongue where it attaches to the throat.

FUTURE SCOPE:

The future scope of this work focuses on the awareness regarding lifestyle changes, maintenance of good oral hygiene, and lack of malnutrition among the concerned population. The study opens into a new era of research in the field of characterization of intake of nutrients rich in metabolizing the addictive products in such a way that the nutrient components (including probiotics etc.) prove to convert the toxic molecules present in the addictive products like tobacco in to less toxic or non-toxic molecules, thus leading to the reversion of malignant transformation of the concerned cells in the human host population.

Conflict of Interest:
There is no conflict of interest declared by the authors.

Author Contributions:
Acquisition and interpretation of data is done by Pritha Pal and statistical analysis of the acquired data is done by Sibashish Baksi. Conception, design and revising of the article are done by Dr. Pritha Pal. Manuscript drafting is done by Rittick Dutta, ShrabaniRoy and Riya Majumder.

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