Original Research Article

Socio-Demographic Confounder of Oral Cancer

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Abstract

Background: Even though examining the oral cavity is easy, most cases of mouth cancer are detected in late stages. This situation affects the type of treatment used, as therapeutic procedures vary depending on the stage and histological factors. The present study was carried out to evaluate that socio-demographic characteristics are related to the advanced clinical stage of oral cancer.

Material & methods: This study included histopathological confirmed 98 cases of oral cancer and age-, sex- and ethnicity-matched 98 cancer free controls. Data collection was carried out over a period of 6 months and the following information was used: clinical stage of cancer, grading, gender, age group, schooling, marital status, family history of cancer, and origin of referral. The clinical stage of cancer was categorized according to the TNM classification. Data were tabulated and statistically analyzed using the software Statistical Package for Social Sciences (SPSS, 22 version).

Results: The result showed that systematic no. of Maximum females (33.3%) and males (36.4%) belong to TNM stage I. Chi square value was 0.479 and p value was 0.923, which was non-significant. 79.1% female cases were well differentiated and 85.1% male's cases were well differentiated. Chi square value was 0.472 and p value was 0.491, which was non-significant. 67 cases were doing hard job and 31 cases were doing sedentary jobs. 35.8% cases who were doing hard jobs had TNM stage I and 83.5% cases were well differentiated. Chi square value for TNM staging was 0.038 and p value was 0.997, which was non-significant. Chi square value for grading was 0.001 and p value was 0.971, which was non-significant. 35.4% cases who were doing sedentary jobs had TNM stage I and 83.8% cases were well differentiated. 27 cases were vegetarian, 43 cases were non-vegartarian (Weekly/Occasionally) and 28 cases were Non- Vegetarian (Daily). 29.6% vegetarian cases belong to stage I and 77.7% vegetarian cases were well differentiated. 41.8% non-vegetarian (Weekly/Occasionally) cases belong to stage I and 83.7% non- vegetarian cases were well differentiated. 32.1% non-vegetarian (Daily) cases belong to stage I and 67.8% non- vegetarian cases were well differentiated. Chi square value for TNM staging was 3.471 and p value was 0.747, which was non-significant. Chi square value for grading was 2.452 and p value was 0.293, which was non-significant. 62 cases were non-smokers and 36 cases were smokers. 40.3% non-smokers cases belong to stage I and 90.3% non-smokers cases were well differentiated. 27.7% smokers cases belong to stage I and 72.2% smokers cases were well differentiated. Chi square value for TNM staging was 6.209 and p value was 0.101, which was non-significant. Chi square value for grading was 5.462 and p value was 0.019, which was non-significant. 27 cases were non-tobacco chewer and 71 cases

were non-tobacco. 29.6% non-tobacco chewer cases belong to stage I and 85.1% cases were well differentiated. 32.0% tobacco chewer cases belong to stage I and 83.0% smoker's cases were well differentiated. Chi square value for TNM staging was 2.13 and p value was 0.544, which was non-significant. Chi square value for grading was 0.062 and p value was 0.802, which was non-significant. 64 cases were non-alcoholic and 34 cases were alcoholics. 34.3% non-alcoholic cases belong to stage I and 82.8% non-alcoholic cases were well differentiated. 38.2% non-alcoholic cases belong to stage I and 85.2% non-alcoholic cases were well differentiated. Chi square value for TNM staging was 0.686and p value was 0.876, which was non-significant. Chi square value for grading was 0.100 and p value was 0.751, which was non-significant.

Conclusion: The present study concluded that socioeconomic factors may be related to the advancement of the clinical stage of oral cancer.

Keywords: oral cancer, socioeconomic factors, TNM staging, Grading

Background

Cancer refers to a set of chronic, degenerative diseases with disorderly cell growth that can spread to other parts of the body [1]. According to the World Health Organization (WHO), by 2030, approximately 75 million individuals will be having cancer[2].Oral cancer (OC) is one of the ten most commonly occurring cancers worldwide and it is attributed as the leading cause of death in certain geographical regions such as South-Central Asia[3].OC is also defined as a pathogenousneoplasia, which appears on the lip or oral cavity. This disease includes cancer of the lips, cheeks, tongue, floor of the mouth, hard and soft palates, pharynx, and sinuses that can be life-threatening if not diagnosed and treated early[4,5].The most common type of OC is the cancer of the oropharynx or throat that often affects the tongue, mouth, and tonsils[6].The prevalence of oral cancer is 30% among all cancers. Use of tobacco and its products as bidi, cigarette, gutkha, khaini, and pan with tobacco are the most common risk factors for oral cancer[7]. According to a study by Raj A et al the prevalence of oral cancer among population of Kanpur was more in males 37 (15.22%). Amongst both males (44.03%) and females (48.05%) gingivo-buccal sulcus was the most common site. The least common site was seen to be lip

with only 10 (3.12%) patients. Well differentiated squamous cell carcinoma was common in both males and females with 155 (63.78%) and 47 (61.03%) respectively. Poorly differentiated squamous cell carcinoma was only reported in 4(1.64%) males[8].Despite being heavily influenced by the tumor stage, the survival of oral cancer patients is influenced by many factors of a social nature such as the time between disease perception, its diagnosis and treatment, access to health-care services, educational level and occupation of the patient, behavioral/cultural factors, exposure to risk factors such as chewing tobacco and some specific topographical distributions[9-15].Harmful habits such as smoking and drinking are considered risk factors for the development of oral cancer[16].In addition, these habits are more prevalent among the low income population[17].The present study was carried outto evaluate that socio-demographic characteristics are related to the advanced clinical stage of oral cancer.

Material and methods

Study design and subjects

The study is ethically approved by the Ethics Committee of GSVM Medical College, Kanpur (39/E.C./Acad./24.07. 2019). This case-control study was carried

out at the JK Cancer Institute, Kanpur and Department of Surgery and Biochemistry, GSVM Medical College, Kanpur. Histopathological confirmed cases of OSCC were recruited as cases and age, sex, and ethnicity matched subjects without any cancer history and free from any kind of oral lesion and chronic illnesses were enrolled as controls. In this case-control study, OSCC were included since it is the most common occurring oral cancer type. After taking the informed consent, data of cases and controls were recorded on an organized data sheet based in socio-demographical. Patients gave informed consent at the moment of the consultation. Data collection was carried out over a period of 6 months and the following information was used: clinical stage of cancer, grading, gender, age group, schooling, marital status, Occupation, Diet, Smoking, Tobacco chewer, Alcohol, family history of cancer, and origin of referral. The information collected was based on the International Classification of Diseases for Oncology (ICD10), in which the following cancer sites were selected: lips (C00), tongue base (C01), tongue (C02), gum (C03), mouth (C04), palate (C05), other non-specific parts of the mouth (C06), parotid gland (C07), other major salivary glands (C08), tonsils (C09) and oropharynx (C10). The data of total number of 98 cases of oral cancer and 98 controls were obtained and which were statistically analyzed. The clinical stage of cancer was categorized according to the TNM classification in: initial stage (I and II) - score 0, and advanced stage (III and IV) - score 1. Data were tabulated and statistically analyzed using the software Statistical Package for Social Sciences (SPSS, v. 22). Data was analyzed by a Chi-square test and p-value <0.01 was considered statistically significant.

Results

In the present study, out of98 cases, 24 patients were females and 74 were males &out of 98 controls 23 were females and 75

were male. Maximum females (33.3%) and males (36.4%) belongs to TNM stage I. Chi square value was 0.479 and p value was 0.923, which was non-significant. 79.1% female cases were well differentiated and 85.1% male's cases were well differentiated. Chi square value was 0.472 and p value was 0.491, which was non-significant. 67 cases were doing hard job and 31 cases were doing sedentary jobs. 35.8% cases that were doing hard jobs had TNM stage I and 85.5% cases were well differentiated. Chi square value for TNM staging was 0.038 and p value was 0.997, which was non-significant. Chi square value for grading was 0.001 and p value was 0.971, which was non-significant. 35.4% cases, who were doing sedentary jobs had TNM stage I and 83.8% cases were well differentiated. 27 cases were vegetarian, 43 cases were non-vegetarian(Weekly/Occasionally) and 28 cases were Non- Vegetarian (Daily). 29.6% vegetarian cases belong to stage I and 77.7% vegetarian cases were well differentiated. 41.8% non-vegetarian(Weekly/Occasionally) cases belong to stage I and 83.7% non- vegetarian cases were well differentiated. 32.1% non-vegetarian(Daily) cases belong to stage I and 67.8% non- vegetarian cases were well differentiated. Chi square value for TNM staging was 3.471 and p value was 0.747, which was non-significant. Chi square value for grading was 2.452 and p value was 0.293, which was non-significant. 62 cases were non-smokers and 36 cases were smokers. 40.3% non-smokers cases belong to stage I and 90.3% non-smokers cases were well differentiated. 27.7% smokers cases belong to stage I and 72.2% smokers cases were well differentiated. Chi square value for TNM staging was 6.209 and p value was 0.101, which was non-significant. Chi square value for grading was 5.462 and p value was 0.019, which

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Table 1: Distribution of the components of the sample according to the clinical stage

	Case (N=98)	Control (N=98)	TNM Staging Case (N=98)				Chi square test	p-value	Grading Case(N=98)		Chi square test	p-value
			1 n (%)	2n (%)	3 n (%)	4 n (%)			Well differentiated n (%)	Poorly differentiated n(%)		
Gender												
Female	24	23	8 (33.3)	6 (25)	5 (20.8)	5(20.8			19(79.1)	5(20.8)	0.472	0.491
Male	74	75	27 (36.4)	20 (27)	16 (21.6)	11 (14.8)	0.479	0.923	63(85.1)	11(14.8)		
Occupation												
Hard	67	72	24 (35.8)	18 (26.8)	14 (20.8)	11 (16.4)			56(83.5)	11(16.4)	0.001	0.971
Sedentary	31	26	11 (35.4)	8 (25.8)	7 (22.5)	5 (16.1)	0.038	0.997	26(83.8)	5(16.1)		
Diet												
Vegetarian	27	28	8 (29.6)	7 (25.9)	6 (22.2)	6 (22.2)			21(77.7)	6(22.2)		
Non-Vegetarian (Weekly/ Occasionally)	43	47	18 (41.8)	14 (32.5)	12 (27.9)	9 (20.9)	3.471	0.747	36(83.7)	7(16.2)	2.452	0.293
Non-Vegetarian (Daily)	28	23	9 (32.1)	5 (17.8)	3 (10.7)	1 (3.57)			19(67.8)	9(32.1)		
Smoking												
No	62	63	25 (40.3)	16 (25.8)	15 (24.1)	6 (9.67)			56(90.3)	6(9.67)	5.462	0.019
Yes	36	35	10 (27.7)	10 (27.7)	6 (16.6)	10 (27.7)	6.209	0.101	26(72.2)	10(27.7)		
Tobacco chewer												
No	27	27	8 (29.6)	10 (37)	5 (18.5)	4 (14.8)			23(85.1)	4(14.8)	0.062	0.802
Yes	71	71	27 (38.02)	16 (22.5)	16 (22.5)	12(16.9)	2.13	0.544	59 (83.09)	12(16.9)		
Alcohol												
No	64	70	22(34.3)	16 (25)	15 (23.4)	11 (17.1)			53(82.8)	11(17.1)	0.100	0.751
Yes	34	28	13 (38.2)	10 (29.4)	6 (17.6)	5 (14.7)	0.686	0.876	29(85.2)	5(14.7)		

Discussion

Oral cancer is most often diagnosed at advanced stage, a fact contributes for lower patient survival and that can be justified by the lack of early diagnosis. As confirmed by the literature, most types of oral cancer consist of squamous cell carcinoma and the late diagnosis is frequently associated with

the lack of knowledge of the signs, symptoms and causes of this disease [18].

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Conclusion

The present study concluded that socioeconomic factors may be related to the advancement of the clinical stage of oral cancer. The real challenge lies in preventing the consequences of tobacco chewing, alcohol, smoking by giving education to the people effectively about good and bad effect of these. The detection of these oral cancers will enable appropriate

clinical management and monitoring. Moreover, improving the incidence, mortality, and survival rates of oral cancer requires a multi-tier structural approach that targets society, dentists, communities, and the individual.

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