ORIGINAL ARTICLE

Association of Life Style Factors in Patients Having Head and Neck Carcinomas Visiting Dental Hospitals

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ABSTRACT

Aim: To determine the frequency of life style factors of head and neck cancer patients visiting tertiary care hospitals of Peshawar and to establish the association between life style factors and head and neck cancer.

Method: This case control study was carried out at Oral Maxillofacial Dental Hospitals, Peshawar and Lahore over a period of six months from September 2017 to February 2018. One thousand samples (200 cases and 800 controls) were included. Cases include both genders of age 40-70 years, diagnosed clinically and histopathologically; visiting OPDs of oral maxillofacial department of dental hospitals and controls include both genders, without head and neck cancers were included. Patients who have any medical history of other cancers, congenital anomalies, blood dyscrasias, immune system disorders and other systemic disorders were excluded.

Results: Demographic characteristics showed that cases had a lower proportion of literates (21.5%) compared to controls (79%); majority lived in rural areas (75.5%) and had a lower income below 30,000 rupees (80.5%). Cases were more likely to smoke (47.5%) compared to controls (21.3%) and a similar pattern can be seen in smokeless tobacco (36.5%) in cases against (26.5%). Overall the use of cannabis was low 1% in cases and 0.6% in controls respectively, however, their use was found to be higher in cases compared to controls. Cases having head and neck cancer were 3 times (OR = 3.3) more likely to be smokers and as compare to 1.6 times more likely to use smokeless tobacco (OR =1.6) and cannabis

Conclusion: Life style factors affect carcinoma head and neck more as compare to other factors.

Keywords: Carcinomas, head and neck, maxillofacial, immune system, systemic disorders, congenital anomalies.

INTRODUCTION

Head and neck cancers are a heterogeneous group of cancers that arise from squamous epithelium and encompass many site-specific cancers including oral cavity, oropharyngeal cancers and laryngeal cancers.[1] Head and neck cancer is sixth most common cancer worldwide and major health problem[1]. Approximately 630,000 new cases diagnosed annually and resulting more than 350,000 deaths each year. Early detection of head and neck cancer is associated with about 83% of reduced morbidity and improved survival[2].

Head and neck cancer accounts for 5-10% of all new cases in Europe and North America.[3] Recent 2012 estimates for Europe showed 100,000 new cases for head and neck cancer with highest incidence in France followed by Hungary, Slovakia and Netherlands. Estimates for North America revealed head and neck carcinoma to be the eighth most common cancer with approximately 53,600 patients diagnosed yearly and 11,500 deaths annually. Moreover, 2012 statistics for Central and South American region shows 6.5% incident cases with mortality rate 5.8% and ranked fifth most common cancer in Brazil where as in Sub-Saharan African statistics reported 18,099 cases in 2008 with Nigeria having the highest incidence rate of 6.2% of all cancers[4]. In Australia head and neck cancer was the 7th most common cancer diagnosed in 2013 with estimated 4,409 cases and 15th leading cause of death. The head and

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neck cancer in Asian-Pacific region is increasing gradually and is currently the fourth leading cause of death. More than 270,000 people are estimated to die of head and neck cancer each year in this region[5].

As majority of population resides in developing countries especially in Asia, incidence of head and neck carcinoma is more common in this region. India is a major contributor to head and neck carcinoma with 400,000 to 500,000 cases diagnosed annually and mortality of 300,000[6].

The burden of head and neck cancer in Pakistan when compared to other cancers is estimated to be 14.5%.The highest prevalence was to be found in Sindh (22.6%), followed by Punjab (13%), Islamabad (13.1%), Baluchistan (11.4%) and KPK (8.6%)[7].

Among all the risk factors, cigarette smoking and excessive consumption of alcohol represents the most important risk factors for the development of head and neck cancer and have a synergistic effect. Alcohol consumption strongly increases the risk of developing cancers by 3%. Chewing betel quid accounts for 10% of tobacco chewing in Asian region. The risk of developing head and neck cancer increases with age of 40 years and above. Cannabis use has been found to be an unreported risk factor by Zhang and colleagues, who reported an increased odds ratio for development of head and neck cancer.[8] A recent study in 2017 suggests a strong relationship between oral cancer incidence and use of smokeless tobacco (naswar) in Pakistan[9].

Keeping in view the alarming increase in head and cancer incidence, there is a strong need to develop strategies that results in identification of head and neck cancer at an early stage when it can be curatively treated. The purpose of this study is to determine the association of

life style factors in patients having head and neck carcinomas visiting dental hospitals

MATERIAL AND METHODS

This case control study was carried out at Oral Maxillofacial Departments of Dental Hospitals of Peshawar and Lahore over a period of six months from September 2017 to February 2018. One thousand samples (200 cases and 800 controls) were included. Cases include both genders of age 40 to 70 years, diagnosed clinically and histopathologically; visiting OPDs of oral maxillofacial department of dental hospitals and controls include both genders of age 40 to 70 years, without head and neck cancer visiting OPDs of oral maxillofacial department of dental hospitals were included. Patients who have any medical history of other cancers, patients with congenital anomalies, blood dyscrasias, immune system disorders and other systemic disorders and non-cooperative and reluctant patients were excluded.

Pilot study was conducted on 10 % of the sample size of the data by using semi structured questionnaire. Face-to-face interview was conducted after having verbal and written consent. Semi structured questionnaire, including sociodemographic profile including gender ,place of residence , literacy level ,marital status ,family system ,house hold income whereas life style factors such as smoking (amount ,duration) tobacco, betel–quid, alcohol, cannabis were asked. Data was analyzed by using SPSS version 16 in a form of frequency and depicted in tables. Odds ratio was calculated.

RESULTS

The ratio of cases and controls is 1:4. It shows that cases had a lower proportion of literates (21.5%) compared to controls (79%); majority lived in rural areas (75.5%) and had a lower income below 30,000 rupees [80.5%] (Table 1).

Table 1: Demographic characteristics of cases and controls

Variable	Cases (n=200)		Controls (n=800)	
	No.	%	No.	%
Gender				
Males	159	79.5	636	79.5
Females	41	20.5	164	20.5
Residence				
Urban	49	24.5	618	77.2
Rural	151	75.5	182	22.8
Literacy				
Uneducated	157	78.5	168	21.0
Educated	43	21.5	632	79.0
Marital status				
Married	192	96.0	784	98.0
Unmarried	8	4.0	16	2.0
Family system				
Nuclear	119	59.5	533	66.6
Joint	81	40.5	267	33.3
Household income				
<30,000	161	80.5	172	21.5
>30,000	39	19.5	628	78.5

Table 2 describes the odds ratio for demographic characteristics of cases and controls. It can be seen that cases were 13.7 times (OR=13.7) more like to be uneducated, and come from a rural background (75.5%) compared to controls. A low level of income was strongly associated with an increased risk of head and neck cancer (OR=15.7). The risk of head and neck cancer did not change with marital status (OR= 0.5) or family system (OR= 0.74).

Table 3 presents the lifestyle factors of cases and controls. It can be observed that cases were more likely to smoke (47.5%) compared to controls (21.3%) and a similar pattern can be seen in smokeless tobacco (36.5%) in cases against (26.5%). Overall the use of cannabis was low1% in cases and 0.6% in controls respectively, however, their use was found to be higher in cases compared to controls.

Table 4 shows the odds ratio for lifestyle factors of cases and controls. It demonstrates those with head and neck cancer were 3 times (OR = 3.3) more likely to be smokers and 1.6 times more likely to use smokeless tobacco (OR =1.6)

Table 2: Odds Ratios for Demographic Characteristics of Cases and Controls

Variable	Cases (n=200)	Controls (n=800)	OR
Gender			
Males	159	636	1.00
Females	41	164	
Residence			
Rural	151	182	10.5
Urban	49	618	
Literacy			
Uneducated	157	168	13.7
Educated	43	632	
Marital status			
Married	192	784	0.5
Unmarried	8	16	
Family system			
Nuclear	119	533	0.74
Joint	81	267	
Household income			
<30,000	161	172	15.1
>30,000	39	628	

Table 3: Lifestyle factors of cases and controls

Variable	Cases (N=200)		Controls (N=800)	
	No.	%	No.	%
Smoking				
Yes	95	47.5	171	21.3
No	105	52.5	629	78.7
Amount of smoking per day				
>10	52	26.0	8	0.01
<10	43	21.5	23	0.03
Duration of smoking (years)				
>10	67	33.5	12	1.5
<10	28	14.0	19	2.38
Smokeless tobacco (Naswar)				
Yes	73	36.5	212	26.5
No	127	63.5	588	73.5
Betal-quid				
Yes	18	9.0	54	6.8
No	182	91.0	146	93.2
Alcohol				
Yes	24	12.0	48	6.0
No	176	88.0	752	94.0
Cannabis (Charas)				
Yes	2	1.0	5	0.6

No	198	99.0	795	99.4

Table 4: Odds ratios for lifestyle factors of cases and controls

Variable	Cases (n=200)	Controls (n=800)	OR
Smoking			
Yes	95	105	3.3
No	105	695	
Amount of smoking per day			
<10	52	8	3.5
>10	43	23	
Duration of smoking (years)			
>10	67	12	3.8
<10	28	19	
Smokeless tobacco (Naswar)			
Yes	73	212	1.6
No	127	588	
Betel-quid			
Yes	18	54	1.4
No	182	746	
Alcohol			
Yes	24	48	2.1
No	176	752	
Cannabis (Charas)			
Yes	2	5	1.6
No	198	795	

DISCUSSION

This study adds to the growing body of evidence for the long held clinical opinion that tobacco smoke is associated with the development of head and neck cancer. The majority of cases of head and neck cancer engaged in smoking a fact that is strongly backed by a vast amount of previous work such as Frank et al.[11]We found that cases were more likely to smoke (47.5%) compared to controls (21.3%) and that smokers were more than three times likely (OR =3.3) to develop head and neck cancer compared to non-smokers.

Alcohol consumption showed an increased risk and the association between alcohol consumption and head and neck cancer is well established by many studies such as praud et al[12]We found the same association in our study despite the fact that in this society alcohol consumption is forbidden and on the whole levels in both cases (12%) and controls (6%) were low. Despite that, cases were twice as likely to consume alcohol, and were more than two times likely to develop head and neck cancer.

Furthermore, there is a growing amount of evidence linking smokeless tobacco, cannabis and betel-quid to the development of head and neck cancer. We observed the use of smokeless tobacco was prevalent in both cases (36.5%) and control (26.5%). Cases were however, 1.71 times with 95% CI times more likely to develop head and neck cancer compared to controls, a statistic which is backed by previous work of Annah et al[13].

Overall, the use of cannabis was very low throughout 1% in cases and 0.6% in controls respectively. However, their use was found to be higher in cases compared to controls and risk of head and neck cancer among users was 1.6 times (OR =1.6) greater than non-users. The use of cannabis and its association of head and neck cancer are well established.

Betel-quid use was on the whole low in cases (9%) and controls (6.8%). Despite that, being a well-established risk factor, as demonstrated by Pramil N et al for head and

neck carcinoma, it was seen to increase the chances of head and neck cancer 1.4 times (OR=1.4), compared to non-users[14]

Our findings showed that in this setting the vast majority of cases were rural dwellers from a low socioeconomic background, poor literacy rate and invariably male. It be seen that cases were 13.7 times (OR= 13.7) more like to be uneducated, and come from a rural background (75.5%) compared to controls. A low level of income was strongly associated with an increased risk of head and neck cancer (OR=15.7). The risk of head and neck cancer did not change with marital status (OR= 0.5) or family system (OR= 0.74)

CONCLUSION

Among other factors, life style factors contributed more in aggravating head and neck cancer .Among different life style factors , cigarette smoking with highest (3.3) odd ratio contributed more as compare to alcohol consumption (2.1), and cannabis (1.6), smokeless tobacco (1.4) and betel quid (1.4) in less in people of Peshawar and Lahore.

REFERENCES

1. Vigneswaran N, Williams MD, Epidemiologic trends in head and neck cancer and aids in diagnosis. Oral Maxillofacial Surg Clin North Am 2014; 2:
2. WarnakulasuriyaGlobalepidemiology of oral and oropharyngeal cancer. Oral Oncol.2008; 45(4-5): 309-16.
3. Siegel R, Naishadham D, Jemal A. Cancer Statistics, 2013. CA Cancer J Clin 2013; 63(1): 11-30.
4. SEER cancer statistics review, 1975-2013. [Mar; 2017]; Anon, (2017).
5. Australian Institute of Health and Welfare 2016.Australian Cancer Incidence and Mortality (ACIM) books: head and neck cancer including lip cancer. Canberra: AIHW.
6. World Health Organization. Regional Office FOR Eastern Mediterranean. Towards a strategy for cancer control in Eastern Mediterranean Region. Cairo: World Health Organization, 2010.
7. Chaudhry S, Khan, A. and Mirzak. Estimating the burden of head and neck cancers in the public health sectors of Pakistan. Asian Pacific Journal of Cancer Prevention 2008. 09, pp.529-532.
8. Napier SS, Speight PM. Natural history of potentially malignant oral lesions and conditions, an overview of literature .J Oral Patho Med.2008; 37(1):1-10.
9. 9, Vigneswaran N, Tilashalski K, Rodu B, et al. Tobacco use and cancer .A reappraisal. Oral Surg Oral Med Oral Pathol Oral Rdiol Endod.1995; 80(2)178-182.
10. Barlett JE KotrlikJW, Higgins Organizational research: Determining appropriate sample size for survey research.infTechnol Learn Perform J 2001; 19; 43-5.
11. Frank A. Jama otolaryngology head neck surg.2013; 139(10):1054 -1060.
12. Praud ,D,Rrota M ,rehmanj,shield k ,zatonski W ,hashibe m ,et al .cancer incidence and mortality attributable to alcohol consumption ,international journal of cancer .2016,138(6),1380 -1387.
13. Annah B, Wyss M, Hashibeand et al. Smokeless tobacco use and the risk of head and neck cancer: pooled analysis of US studies in the INHANCE Consortium. *Am J Epidemiol* 2016; 184(10): 703–16.
14. Singh PN, Natto Z, Saxena R, et al .Cotinine levels among betel quid users and cigarette smokers in Cambodia. Jun 29 2018,Loma Linda University, USA.