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Epidemiology of head and neck cancer in a tertiary care hospital

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ABSTRACT

Background: Head and neck cancer is a deadly disease that has emerged as major health problem. It constitutes one of the commonest cancers in India. Use of smokeless tobacco (pan masala, zarda etc.,) is on the increase in North India and is responsible for the majority of these tumours. The aim of this study is to evaluate demographic profile of patients with squamous cell carcinoma of head and neck cancer and to assess the most common sub-site involved among these patients.
Methods: Histologically confirmed patients with squamous cell carcinoma of head and neck were included in study. Retrospective study from 1st January 2011-31st December 2015 was conducted. Records from OPD based register of ENT Department of Guru Gobind Singh Medical College and Hospital was used. Data was statistically analyzed.
Results: Among 1,052 patients, 74.4% were males and 25.6% were females. The male to female ratio was found out to be 3:1. Tongue was the most common sub-site involved whereas the retromolar trigone was least common site involved.
Conclusions: The squamous cell carcinomas are the most common head and neck cancer. The carcinomas develop in the upper aero digestive tract after exposure to various carcinogens.

Keywords: Head and neck cancer, Sites, Squamous cell carcinoma

INTRODUCTION

Head and neck cancer is a complex disorder that includes mostly squamous cell carcinomas that can develop in the throat, larynx, nose, sinuses, and mouth. Head and neck squamous cell carcinoma (HNSCC) remains a major clinical challenge in oncology and represents the sixth most common neoplasm in the world today.[1] Annually, about 6,50,000 new cases of head and neck cancers are diagnosed all over the world with a ratio of 3:1 between males and females.[2] Squamous cell carcinoma is characterized by malignant neoplasm of squamous epithelium with marked differentiation and predisposition to primitive and widespread lymph nodal metastasis.[3]

Many risk factors have been implicated for the causation of head and neck cancers. The oral habits of betel quid chewing, alcohol drinking and tobacco smoking have been documented as risk factors for HNC.[4-6] Tobacco and betel quid may act synergistically as a carcinogen.[7] Human papillomavirus (HPV), the causal agent of cervical cancer, has been suggested to play a role in the etiology of cancer of the oral cavity and oropharynx. The most important oncogenic types are HPV type 16 (HPV-16) and HPV-18.[8]

METHODS

Study area

The present study was conducted in Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab.

Study design

Retrospective study design was followed.

Study period

Study was conducted retrospectively for a period of 5 years i.e. from 1st January 2011 to 31st December 2015.

Study population

It includes all the patients presented to ENT OPD of GGS Medical College and Hospital, Faridkot.

Inclusion criteria

Histologically confirmed cases of squamous cell carcinomas of head and neck region were included in our study.

Exclusion criteria

Cases with other variants of carcinoma.

Methodology

The present study was conducted in a tertiary care hospital of Faridkot, Punjab. Retrospective study from 1st January 2011 to 31st December 2015 was conducted. Records from OPD based tumour register of ENT Department of Guru Gobind Singh Medical College and Hospital was used. A total of 1052 patient's data were statistically analyzed. All the patients fulfilling our inclusion criteria were included in our study. The details of the patients like age, sex, region, site involved were taken from the OPD registers of the ENT department. The relevant data was collected and statistically analyzed.

RESULTS

The OPD based registers recorded a total of 1,052 patients of head and neck cancers during the time period 2011 to 2015. Among 1,052 patients, majority of them, around three-fourth were males constituting (74.4%) 783 and rest (25.6%) 269 were females. The overall male to female ratio of head and neck cancers was 3:1. The results were found to be statistically significant as p-value is <0.05 (Table 1).

Table 1: Age and sex wise distribution of patients.

Age group (in years)	Male		Female		Total	
	No. of males	%	No. of females	%	No. of respondents	%
<10	03	100.00	00	00	03	100.00
10-19	03	50.00	03	50.00	06	100.00
20-29	06	35.29	11	64.70	17	100.00
30-39	50	63.29	19	24.05	79	100.00
40-49	145	71.78	57	28.21	202	100.00
50-59	198	75.00	66	25.00	264	100.00
60-69	228	70.37	96	29.62	324	100.00
70-79	81	71.05	33	28.94	114	100.00
80-89	17	43.58	12	30.76	39	100.00
>90	02	50.00	02	50.00	4	100.00
Total	783	74.42	269	25.58	1052	100.00

Table 2: Sub-site Distribution of HNSSCs.

S. no.	Sub-site of cancer	Frequency	%
1.	**Buccal Mucosa**	109	10.4
2.	**External Ear**	9	0.9
3.	**Hypopharynx**	26	2.5
4.	**Larynx**	169	16.0
5.	**Lip**	18	1.7
6.	**Maxillary Sinus**	20	1.9
7.	**Mouth**	156	14.8
8.	**Nasal Cavity**	8	0.8
9.	**Oropharynx unspecified areas**	68	6.4
10.	**Parotid Gland**	42	4.0
11.	**Post cricoid region**	19	1.8
12.	**Pyriform sinus**	78	7.4

Continued.

S. no.	Sub-site of cancer	Frequency	%
13.	Retromolartrigone	4	0.4
14.	Submandibular gland	21	2.0
15.	Thyroid	56	5.3
16.	Tongue	183	17.4
17.	Tonsil	50	4.8
18.	Vallecula	16	1.5
19.	Total	1052	100.0

Table 3: Sub-site wise distribution of patients according to age.

Sub-site of cancer	Number	Minimum age	Maximum age	Mean	S.D.
Buccal mucosa	109	22	85	53.13	13.449
External ear	9	40	85	62.33	14.975
Hypopharynx	26	26	80	54.77	14.553
Larynx	169	25	80	56.22	12.325
Lip	18	40	83	57.06	10.641
Maxillary sinus	20	2	80	52.45	17.464
Mouth	156	22	85	55.90	11.457
Nasal cavity	8	27	90	58.13	19.475
Oropharynx unspecified areas	68	40	80	55.77	11.637
Parotid gland	42	8	85	52.29	16.457
Post cricoid region	19	22	75	49.95	12.154
Pyriform sinus	78	30	85	58.35	11.125
Retromolartrigone	4	35	95	64.50	24.515
Submandibular gland	21	22	80	49.86	14.242
Thyroid	56	28	80	47.68	14.450
Tongue	183	24	90	57.24	12.849
Tonsil	50	5	75	54.74	13.495
Vallecula	16	10	75	52.94	14.210

Most common sub-site of head and neck cancer in patients presented to our hospital was found to be carcinoma tongue (17.4%) followed by larynx (16.0%), mouth (14.8%), buccal mucosa (10.4%) and pyriform sinus (7.4%) and least prevalent were retromolar trigone (0.4%), external ear (0.9%) (Table 2).

Patients were categorized on basis of type of cancer with respect to their age and found that in retromolar trigone cancer the maximum mean age was 64.50 years followed by carcinoma of external ear with mean age of 62.33 years, supraglottis 60.51 years, pyriform sinus 58.37 years, lip 57.06 years, larynx 56.22 years and least was seen in lingual surface of epiglottis with mean age of 45 years (Table 3).

DISCUSSION

Head and neck malignancies are common in regions where tobacco use and alcohol consumption is high. The prevalence of oral cancers is high in the Indian sub-continent. The variation in the incidence of cancers by sub-site of head and neck is mostly related to the relative distribution of major risk factors such as tobacco or betel quid chewing, cigarette or bidi smoking and alcohol consumption.

In a study conducted by Ravi et al, trends of prevalence and pathological spectrum of head and neck cancers in North India, the males outnumbered females with a male to female ratio of 2.14:1. Similar results were concluded in our study with a male to female ratio of 3:1.[9]

A study proposed by Abhinandan, prevalence of head and neck cancers in the north east-an institutional study, majority of patients belonged to the age group 40-69 years with males outnumbering females (2.9:1). The dominant site involved was the tongue (32.67%) which is similar to findings in our study.[10]

As reported in a study by Sankaranarayanan, oropharynx cancer was the most common cancer with the commonest subsite as base of tongue (51%).[11]

Interpretation of data from a single institution has many limitations. The data reflects prevalence of disease in our specific patient population reporting to the hospital and

not the community as a whole. This disease is a cause of major concern as it is associated with high morbidity and mortality. Over and above, lack of awareness about cancer and non-existent cancer prevention programmes have all made the scenario even worse. A comprehensive effort is needed to identify the cause of such high prevalence, generate awareness and treatment options suited to meet this challenge.

CONCLUSION

The squamous cell carcinomas are most common head and neck cancer. The carcinomas develop in the upper aero digestive tract after exposure to carcinogens such as tobacco and alcohol. The other important causative agent in a subset of these cancers is human papillomavirus which need to study in detail. In our study tongue was most common site followed by larynx and buccal mucosa.

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