

EPIDEMIOLOGICAL PROFILE OF HEAD AND NECK CANCERS AT A TERTIARY CARE HOSPITAL

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HOW TO CITE THIS ARTICLE:

Saqib Zaffar, Aamir Rashid, Syed Arshad Mustafa, Malik Tariq, Manzoor A. Bhat, Mukhtar Khan, Wasim Rashid. "Epidemiological Profile of Head and Neck Cancers at a Tertiary Care Hospital". *Journal of Evolution of Medical and Dental Sciences* 2015; Vol. 4, Issue 82, October 12; Page: 14285-14293, DOI: 10.14260/jemds/2015/2032

ABSTRACT: Head and neck cancer is the fifth most common malignancy globally among adults and comprises 5% of all malignancies worldwide. There is scarcity of data regarding the clinico epidemiological profile of head and neck carcinomas in our population. The demographic presentation & exact prevalence of these malignancies in our population is not known. **AIMS & OBJECTIVES:** To study the clinico- epidemiological profile of head and Neck carcinoma in Kashmiri ethnic population of India. **MATERIAL & METHODS:** This study was conducted at Cancer center at SMHS Srinagar, J & K, India from 2012 to 2014. The study included total of 106 patients with Head and Neck Squamous Cell Carcinoma (HNSCC) registered with the department from 2012 to 2014. It was a prospective and retrospective study. Patients having histopathological (HPE) confirmation of the disease were enrolled for the study. All the demographic & clinical details of the recruited patients were studied thoroughly including history, physical examination, investigations and mode of treatment. **RESULTS:** Male to female ratio was 2.7:1. The mean age was 55.3 years. Among both males and females, the highest incidence of HNSCC was seen within the age group of 51-60 years. The most common primary site of disease was Oral Cavity-36(33.96%), Larynx-28 (26.41%), Pharynx in 16(15.09%), Nasopharynx in 10(9.43%) , Sinonasal in 10(9.43%), and Tonsil in 6 cases(5.66%). Patients usually presented with advanced stage of disease {(Stage III, IV-(64.15%) 68 versus stage I, II-(35.84%) 38}. Tobacco consumption in any form was present in 89% of our population. Lack of balanced diet (28%) and poor dental hygiene (50%) and belonging to low socioeconomic class (57%) were also thought to be significant factors for the disease burden. Most of our patients were treated with surgery followed by adjuvant chemo-radiotherapy (37.73%), chemo and radiotherapy (28.31%), radiotherapy alone (16.98%) & surgery alone (9.4%). **CONCLUSION:** Cancers of oral cavity and larynx are most common head & neck carcinoma in our population. Male Sex, tobacco consumption, lack of balanced diet & poor orodental hygiene are significantly associated with head and neck carcinoma in our population.

KEYWORDS: Head and neck carcinoma, Kashmiri population.

INTRODUCTION: Head and neck cancer is the fifth most common malignancy globally among adults,⁽¹⁾ and comprises 5% of all malignancies worldwide.⁽²⁾ Worldwide head and neck cancer statistics indicate that there are about 640,000 cases of head and neck cancer per year, resulting in approximately 350,000 deaths per year. Cancers of the oral cavity and pharynx are the most common type of head and neck cancer with approximately 480,000 cases per year. There are around 160,000 cases of cancer larynx per year.⁽³⁾

The number of new cases of head and neck cancers in the United States is around 40,000 per year, accounting for about 3% of adult malignancies and resulting in around 11,000 deaths per year.⁽⁴⁾ In Europe, there are around 132,000 cases of head and neck cancer per year (91,900 cases of cancer

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of the oral cavity & pharynx and 40,400 cases of cancer of the larynx), resulting in 62,800 deaths per year.⁽⁵⁾ Head and neck cancer is the commonest cancer in India and consists of about one-third of all cancers.^(6,7) According to the Indian Council of Medical Research (ICMR) approximately 0.2-0.25 million new head and neck cancer patients are diagnosed each year.⁽⁸⁾ In India, head and neck cancers account for 23% of all cancers in males and 6% in females.⁽⁹⁾ In males, oral cavity and pharynx are the commonly affected sites, followed by larynx. In females, oral cavity is the preponderant site.⁽¹⁰⁾ Head and neck cancers are nearly twice as common among men as they are among women.⁽¹¹⁾

Head and neck cancers increase with age, especially after 50 years of age.⁽¹²⁾ Although most patients are between 50 and 70 years of age, younger patients can develop head and neck cancer. There are wide variations in the incidence of head and neck cancer among different geographic regions. The higher incidence of the disease in Asia is thought to reflect the prevalence of risk factors in this part of the world. Nasopharyngeal carcinoma is another head and neck tumor with a distinct ethnic predilection. Endemic areas include southern China, northern Africa, and regions of the far Northern Hemisphere.

Tobacco smoking, alcohol use, ultraviolet (UV) light exposure, viral infections, smoking marijuana and environmental exposures have been associated with development of head and neck cancer. Factors which might reduce the risk of developing head and neck carcinoma include dietary intake of vitamin A, β -carotene, and α -tocopherol.⁽¹³⁾

Studies have shown that there is significant variability in the prevalence of cancer in different groups and communities within a population. Differences have also been observed in the etiological & clinicopathological profile of these cancers particularly in the Indian subcontinent.⁽¹⁴⁾

There is scarcity of data regarding the clinico-epidemiological profile of head and neck carcinomas in our population. The demographic presentation & exact prevalence of these malignancies in our population is not known. It is also not clear whether the clinical features of head and neck carcinomas are different in our population as compared to the rest of the world. We intend to study the distribution of various etiological factors of these malignancies & to find out any etiological agents unique in our population. Since considerable differences exist in the pattern of consumption of tobacco, alcohol, dietary habits, level of awareness, social status and availability of health care services in our population compared to the other states, we attempt to define the demographic & clinical profile among the group of HNSCC patients reporting in our cancer centre in Kashmir.

AIMS AND OBJECTIVES: To study the clinico-epidemiological profile of head and neck carcinoma in Kashmiri population of India.

MATERIAL METHODS: This study was conducted at Cancer center at Government Medical College Srinagar, J & K, India from 2012 to 2014. The study included patients with Head and Neck Squamous Cell Carcinoma (HNSCC) registered with hospital from 2012 to 2014. It was a prospective and retrospective study. Patients having histopathological (HPE) confirmation of the disease were enrolled for the study. An informed consent was taken from all the patients before including in the study. All the demographic & clinical details of the recruited patients were studied thoroughly including history, physical examination, investigations and mode of treatment. The site of cancer was classified based on the second edition of the International Classification of Disease for oncology, depending on the 11 presentation sites of HNSCC: base of tongue, tongue, buccal mucosa, palate, floor

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of mouth, lip, gingiva, oral cavity, oropharynx, nasopharynx, and hypopharynx. This study was approved by the hospital ethical committee.

OBSERVATION AND RESULTS: A total of 106 patients of Head and Neck Cancer were enrolled in this study to analyse the clinico epidemiological characteristics of head and neck cancer in Kashmiri population of India. The number of male patients was 78(73.58%) and number of female patients was 28 (26.42%), which is depicted in figure 1. Male to female ratio was 2.7: 1. The mean age was 55.3 years. The age distribution of patients is showed in table 1 and we found that in all age groups, number of males was more than female subjects. However in the age group <40 years the number of males was significantly higher than females ($p=0.005$). Among both males and females, the highest incidence of HNSCC was seen within the age group of 51-60 years. The overall and sex wise age distribution of patients is shown in figure 2 and 3. The most common primary site of disease was Oral Cavity – 36(33.96%), Larynx - 28 (26.41%), Pharynx in 16(15.09%), Nasopharynx in 10(9.43%), Sinonasal in 10(9.43%) and Tonsil in 6 cases (5.66%). The distribution of cases as per primary site and subsite of disease is shown in figures 4 & 5. Sex wise distribution as per site was as follows- nasopharynx 8 males, 2 females; sinonasal 5 males and 5 females; oral cavity 20 males, 16 females; tonsil 4 males, 2 females; pharynx 11 males, 5 females & larynx 24 males, 4 females. Our patients usually presented with advanced stage, the number of patients with Stage I disease was 11(10.37%) cases, Stage II disease was 27(25.47%) cases, Stage III disease was 40(37.73%)cases and Stage IV disease was 28(26.41%) cases. The sex wise T, N, M and combined stage distribution of patients is shown in tables 2, 3, 4 & 5. All the patients had histology of squamous cell carcinoma from the primary site. The number of cases with well differentiated tumours was 64(60.37%), with moderately differentiated tumors 34(32.07%) and with poorly differentiated tumours were 8(7.54%).

The distribution of cases according to grade of tumours is shown in figure 9. The number of patients treated with 'surgery alone' was 10 cases, with 'radiotherapy alone' was 18 cases, with both radiotherapy and chemotherapy was 30 cases with surgery followed by adjuvant chemotherapy and radiotherapy was 40 cases. 'Chemotherapy alone' was not given in any patient and 8 patients did not receive any treatment. The number of patients with cigarette smoking alone was 32 cases, with 'Hukka' smoking alone was 16 cases with tobacco chewing alone was 30 cases. The combined use of two or more forms of tobacco was seen in 16 cases and 12 cases did not use any form of tobacco. Overall 89% of patients were consuming tobacco in one form or the other. The number of patients with alcohol consumption was two cases. The number of patients exposed to 'Dietary Risk Factors' was 30(28%) cases. The number of patients with poor orodental hygiene was 52(49%) cases, with average orodental hygiene was 32(30%) cases and with satisfactory orodental hygiene was 22(21%) cases. Our patients mostly belonged to low or medium social class. The number of patients belonging to low socio-economic class was 60(56.60%) cases, middle socio-economic class was 38(35.89%) cases and upper socio-economic class was 8(7.54%) cases. The number of patients belonging to rural area was more as compared to urban {76(71.69%) versus 30(28.30%)} cases respectively.

DISCUSSION: Head and neck cancer includes malignant tumors of the upper aero-digestive tract & anatomically it includes the oral cavity, pharynx and larynx. About 40% of head and neck cancers occur in the oral cavity, 15% in the pharynx, 25% in the larynx, and the rest in the remaining sites (Salivary glands, thyroid).⁽¹⁵⁾

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The incidence of head-and-neck cancer increases with the age, especially after 50 years of age.^[12] In our study 66 % of patients were above the age of 50 years and 84% of patients were above the age of 40 years. Only 15% of patients were below the age of 40 years. This indicates that the age distribution of head and neck cancers in our population is similar to other parts of the world.

Relative to men, head and-neck cancer is relatively rare in women. Head and neck cancers are nearly twice as common among men as they are among women.⁽¹¹⁾ Particularly in the developed countries, men are affected more often than women, the sex ratios might exceed 10:1.^[16] In our study the male to female ratio was 2.7: 1, i.e. 74% of patients were males and 26% were females. This shows that Head and Neck Cancers are more common in males in our population also and the distribution is similar to the trend in rest of the world.

Etiology of head and neck carcinomas remains a matter of investigation. In the development of cancers of oral cavity, pharynx and larynx both tobacco and alcohol consumption are well-established risk factors.^(17,18,19,20,21) Approximately 60% of oral cancers in men and 30% in women could be attributed to smoking alone.^(22,23) In our study 89% of patients were consuming tobacco in one or the other form. Sixty percent of patients had history of tobacco smoking and 30% consumed smokeless tobacco (Snuff). Only 10% of patients were not consuming tobacco. Around 3% of patients had alcohol consumption and 2% consumed both tobacco and alcohol. This shows that tobacco consumption alone is a major risk factor in our population for the development of Head and Neck Cancers. Alcohol consumption is quite less in our population due to religious reasons but still Head and Neck Cancers have a very high incidence in tobacco consumers indicating that it is not necessary to have consumption of both tobacco and alcohol for the development of Head and Neck Cancers.

Dietary deficiencies or imbalances may also play an etiological role in head & neck cancers estimated to be as high as 10–15% of cases.⁽²⁴⁾ However, the evidence relating to certain dietary components and the risk of cancer is inconsistent.⁽²⁵⁾ Micronutrient deficiencies seem to be associated with increased risk.⁽²⁶⁾ Evidence suggesting that a diet high in vegetables (Particularly rich in carotenes) and fruits probably decreases the risk.^(27,28) In our study 28% of patients had dietary deficiencies, as in our population there is more consumption of meat and less consumption of fruits and vegetables. This indicates that lack of balanced diet plays a significant role in the development of Head and Neck Cancers in our population

Clinicians have long noticed an association between poor oral hygiene, poor dental status and oral cancer.⁽²⁹⁾ Some studies indicate that the poor oral hygiene may act synergistically with some other risk factors.⁽³⁰⁾ In our study 50% of patients had poor orodental hygiene out of which 33% of patients had cancers of oral cavity. This shows that poor orodental hygiene plays a vital role in the development of oral cancers in our population.

It is common knowledge that inequalities in health status reflect social inequalities in society. Head and Neck Cancers are predominant in people belonging to lower socio-economic status as they lack health awareness and are exposed to more risk factors.^(31,32,33,34,35) In our study 57% of patients belonged to low socio-economic status implying that in our population this group is at increased risk of developing Head and Neck Cancers.

CONCLUSION: A male preponderance was noted in our population and mostly patients were more than 40 years of age at presentation. Unhealthy lifestyle which includes tobacco consumption, lack of balanced diet and poor orodental hygiene play significant role in the development of head and neck

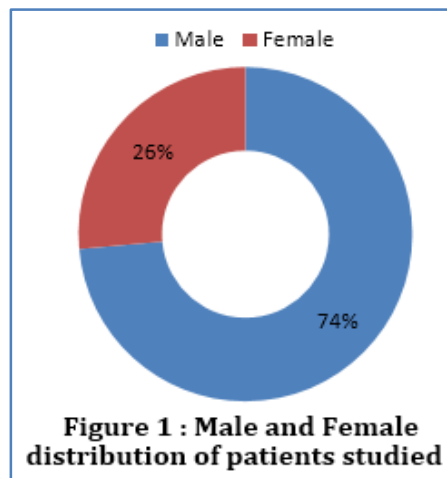
cancers. Good education and lifestyle modification can greatly help in reducing the burden of these malignancies in our population.

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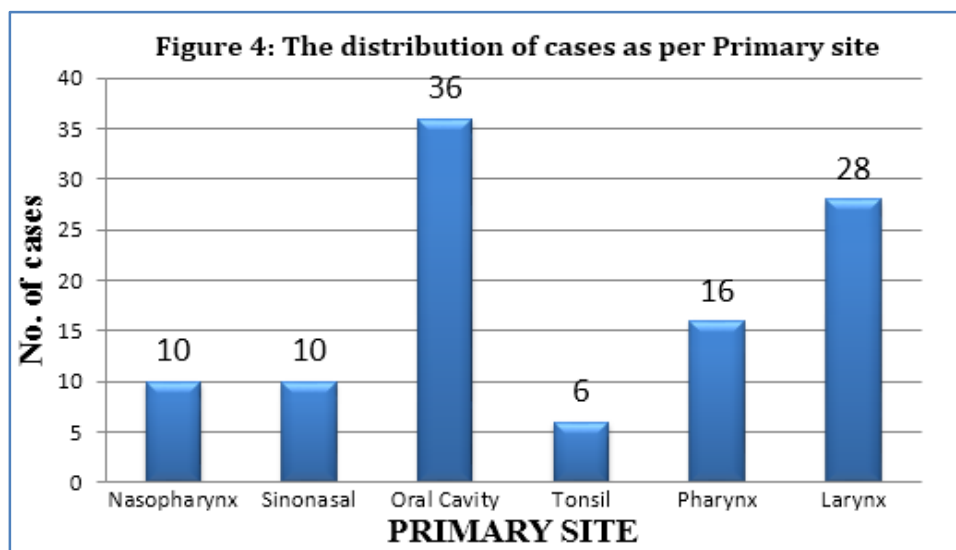
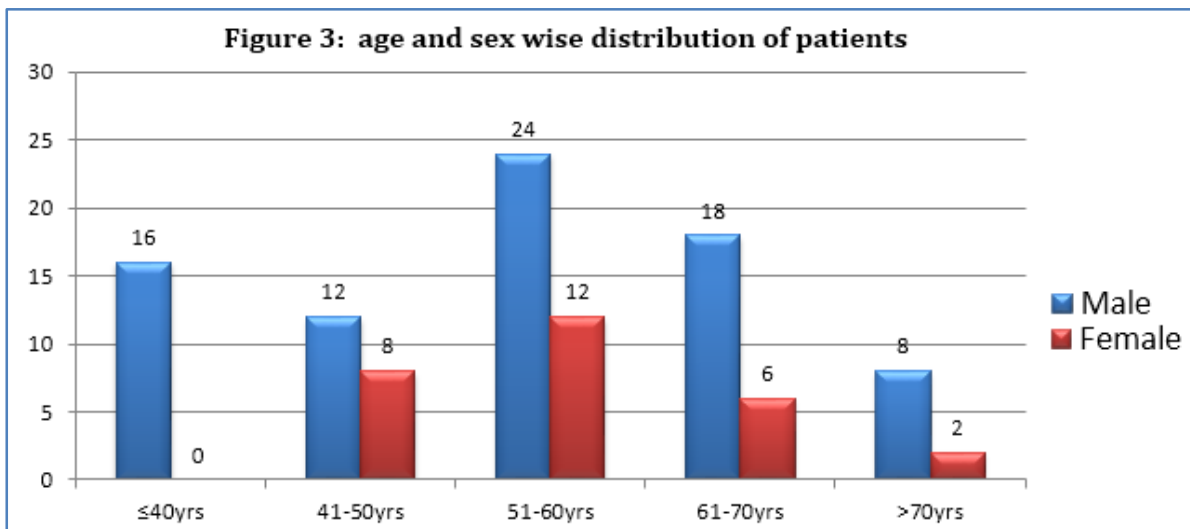
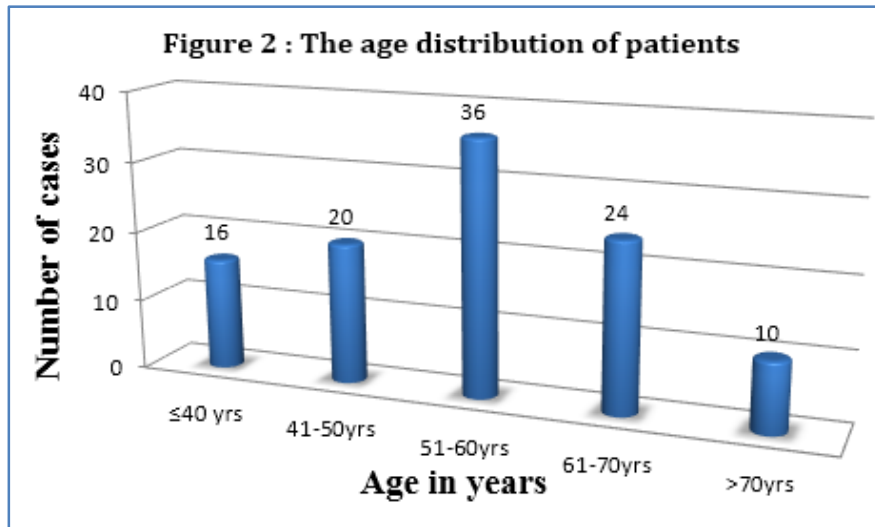
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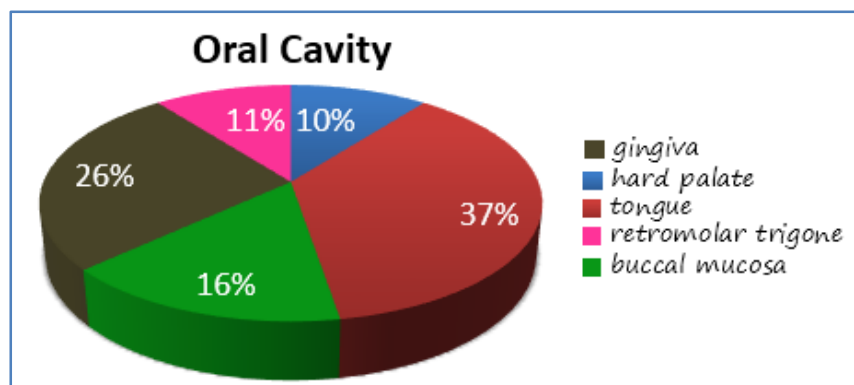
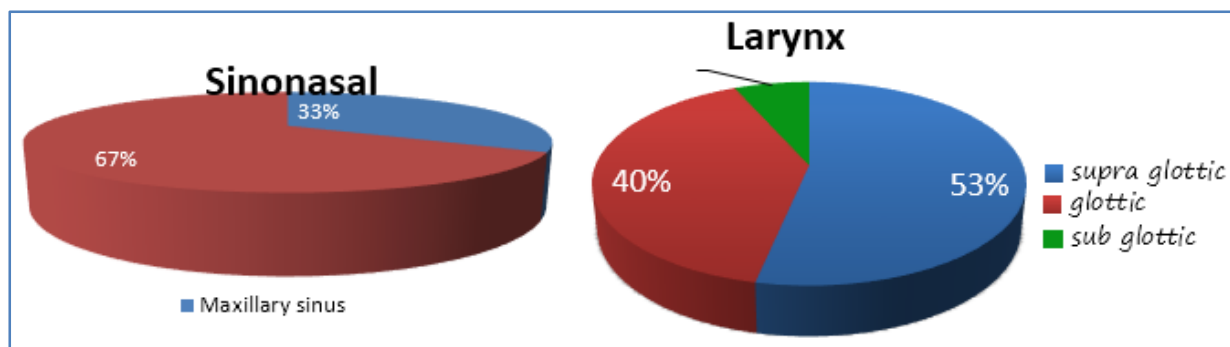
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Figure 1: The distribution of cases as per Sub site of disease.**Figure 5**

Age Group (years)	Total no. Patients	Males	Females	P value
<40	16(30.18%)	16(20.51%)	0(0%)	0.005
41-50	20(37.73%)	12(15.38%)	8(28.57%)	0.1
51-60	36(67.92%)	24(30.76%)	12(42.85%)	0.25
61-70	24(45.28%)	18(23.07%)	6(21.42%)	1.0
>70	10(18.86%)	8(10.25%)	2(7.1%)	1.00

Table 1: Distribution of cases based on sex and age-group

Stage	Number of Males (%)	Number of Female (%)
T1	6(7.69%)	4(14.28%)
T2	32(41%)	10(35.71%)
T3	34(43.5%)	12(42.85%)
T4	6(7.69%)	2(7.1%)

Table 2: Sex wise T stage distribution of patients

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Stage	Males	Females
N0	32(41.02%)	18(64.28%)
N1	26(33.33%)	4(14.28%)
N2	16(20.51%)	6(21.42%)
N3	4(5.1%)	0(0%)

Table 3: Sex wise N stage distribution of patients

M stage	Males	Females
M0	74 (94.8%)	28 (100%)
M1	4(5.12%)	0(0%)

Table 4: Sex wise M stage distribution of patients

Stage	Male	Female	P value
I	6(7.69%)	6(21.42%)	1.00
II	20(25.64%)	8(28.57%)	0.8
III	28(35.89%)	10(35.71%)	0.2
IV	24(30.76%)	4(14.28%)	0.14

Table 5: Sex wise distribution as per stage of disease

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FINANCIAL OR OTHER

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Date of Submission: 01/10/2015.
Date of Peer Review: 02/10/2015.
Date of Acceptance: 05/10/2015.
Date of Publishing: 09/10/2015.