

Epidemiology characteristic of Head & Neck Cancers (HNCs) in Southwestern Pakistan: 21 Years Experience

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ABSTRACT

Background: Head & neck cancers (HNCs) are a significant type of Pakistani cancer. Due to significant diversified risk factors, the range varies from place to place within the region.

Aims and Purpose: The objective of this research was to highlight the epidemiological aspects of malignant head & neck tumors in southwest Pakistan, with a view to examining the burden of disease, gender, site distribution and demographical profile.

Study concept and Location: Retrospective research conducted at Centre for Nuclear Medicine and Radiotherapy (CENAR), Quetta.

Materials and Methods: All patients with histologically confirmed Head and Neck cancer diagnoses were chosen from the clinical record between January 1998 and December 2018 (21 years). Information with respect to sex, location of the tumor, and other points of interest was gotten from their clinical records and the factual investigation was done.

Results: There were 24687 patients registered at CENAR Quetta during the study period. Of such cases, 23,887 have been examined. Head & neck cancers are the third most common tumor with a prevalence rate of 10%. The most frequently affected sites was oral cavity (47 percent), followed by Nasopharynx (16 percent). It is 3rd most common males' tumor and the 4th most common females' tumor with a 1.5:1.0 ratio. Maximum HNC incidence (32.79 percent) was in ages 60-69 years.

Conclusion: Malignancy of Head & neck has been the 3rd most prevalent form of cancer reported at CENAR in the last 21 years. Most patients undergo cancer therapy at the later stages of the disease due to lack of knowledge, education, and medical services, which makes cure quite difficult. The major causes of cancer of the head & neck are smoking and tobacco use, paan, naswar, etc. A strong correlation has been found between tobacco use, male gender, and low level of education. To minimize the preventable risk factor of head & neck cancer, the younger generation should be aware of the adverse effects of tobacco use.

Key Words: Epidemiology, Head & Neck Cancer (HNC), Prevalence, Gender, Site distribution, Southwestern

INTRODUCTION

Head & neck cancer is a heterogeneous disorder characterized by malignant and uncontrolled growth of cells in different areas of the head & neck, such as oral cavity, larynx, oropharynx, hypopharynx, paranasal sinuses, and nasal cavity¹. Head and neck squamous cell carcinoma (HNSCC) remains a serious clinical challenge in oncology and speaks the sixth most common neoplasm within the world today². The South Asian region that includes Pakistan are recognized as a high-risk geographical area for this form of cancer, whereas it is rarely found in developed countries such as the UK³. It has been noted that Pakistan has a significantly higher risk of developing head and neck cancer than any other country in the world. It's attributed to a significant number of people's chronic participation in smoking and chewing Gutka. In countries like Pakistan, India and Sri Lanka the incidence rate of head & neck cancer was reported as ten per one hundred thousand population. Survival rate for head & neck tumor for five-year is less than forty percent⁴.

Oral cavity is the prevalent site of head & neck tumor in males. The majority of cancers of the head and neck exist in the hospital at an advanced stage responsible for delays in diagnosis and treatment, reducing the survival rate⁵.

Head & neck malignancies are among the leading causes of death both in developing and developed countries⁶. Screening of high-risk individuals and early diagnosis is also critical for decreasing mortality from cancers of head and neck. Diverse genetic and environmental factors, including smoking, alcohol intake, human papilloma virus and poor oral hygiene and diet, are important in developing cancers of the head and neck^{7,8}.

Due to the continuing use of cigarette smoking, fifty-eight percent of the world's add up to head & neck cancers in South and Southeast Asia⁹.

CENAR Quetta is Balochistan's only facilitated Radiotherapy centre. Although it has limited cancer care facilities, it drains cancer patients from Balochistan and adjacent Afghanistan. It has been providing state-of-the-art treatment facilities for poor and ailing cancer patients of the province since it was established in 1987, at very affordable costs.

MATERIAL AND METHOD

The current research was performed at the Centre for Nuclear Medicine and Radiotherapy (CENAR), Quetta Balochistan, with the objective of evaluating descriptive

epidemiological features and prevalence of head & neck malignancies from 1998 to 2018.

All the information were obtained from clinical reports that were collected at this period was collected. In this report, we highlight the epidemiological aspects of malignant of head & neck tumors in southwest of Pakistan, with a view to examining the burden of disease, gender, site distribution and demographical profile.

RESULTS

In our research, the Centre for Nuclear Medicine and Radiotherapy (CENAR) oncology department reported 23887 patients for all 21 years malignancies, 9.97 percent of which were head and neck patients. Including its 2382 patients with cancer of Head and Neck, 60% were male patients, and 40% were female.

The data were sub-categorized by tumor location, which revealed oral cavity affected 1125 (47.23 percent) of head and neck cancer patient, followed by 391 patients with hypopharynx and 254 patients with nasopharynx. HNC (32.79 percent) incidence was in 60-69 years followed by 50-59 years (26.20 percent).

Cancer in CENAR Quetta Balochistan (21 years) From January 1998 to December 2018

Total No of Analyzed Patient	23887	100
Total No of Male Patient	12738	53.33
Total No of Female Patient	9953	41.67
Total No of Children patient	1196	5.00

Tumor analysis in sequence

Sr. No.	Tumor Type	No. of Patients	Percentage
1	GIT Tumors	4768	19.96
2	Ca Skin	3280	13.73
3	Head and Neck Tumors	2382	9.97
4	Ca Breast	2230	9.34
5	Malignant Lymphomas	1972	8.30
6	Genitourinary Tract Tumors	1838	7.70
7	Hematological Malignancies	1462	6.12
8	Gynecological Tumors	1392	5.83
9	Sarcomas	1232	5.21
10	Brain Tumors	842	3.53
11	Ca Thyroid	574	2.40
12	Ca Lung	470	2.00
13	Solid Tumors of Children	402	1.70
14	Tumors of U.K primary	306	1.30
15	Tumors of Eye	276	1.20
16	Miscellaneous Tumors	351	1.50

Sub site distribution of HNC

Tumor Type	Total	Percentage
Oral Cavity	1125	47.23
Nasopharynx	391	16.41
Hypopharynx	254	10.66
Larynx	233	9.79
Maxillary Antrum	131	5.50
Others	248	10.41

Gender wise distribution of Patient

Tumor Type	Male Patients	Female Patients	Total Patients
Head & Neck	1428	954	2382
Oral Cavity	620	505	1125
Nasopharynx	253	138	391
Hypopharynx	122	132	254
Larynx	177	56	233
Maxillary Antrum	77	54	131
Others	179	69	248

Age wise distribution of patients

Age group in years	Male Patients	Female patients	Total	Percentage
< 10	3	0	3	0.13
10-19	6	6	12	0.50
20-29	12	22	34	1.43
30-39	96	67	163	6.84
40-49	284	181	465	19.52
50-59	396	228	624	26.20
60-69	456	325	781	32.79
70-79	146	99	245	10.29
80-89	27	24	51	2.14
>90	2	2	4	0.16
Total	1428	954	2382	100

Analysis of Tumor Nationality wise

Tumor Type	Male - Paki stani	Male- Afghani	Female- Pakistani	Female- Afghani	Total
Head & Neck	924	504	725	229	2382
Oral Cavity	409	211	416	89	1125
Nasopharynx	172	81	103	35	391
Hypopharynx	81	41	79	53	254
Maxillary Antrum	48	29	38	16	131
Larynx	126	51	39	17	233
Others	88	91	50	19	248

DISCUSSION

The incidences of head and neck cancers are rising and are in the top ten malignancies worldwide¹⁰. Our findings are in line with rising trend, particularly in terms of sex and risk factor associated with these tumors. Head and neck are replaced sixth most widely diagnosed cancer and their proportion in males is much higher than in females with ratio of 2:1¹⁰. Results in our research showed male predominance in cancer of the Head and Neck with a ratio of 1.5:1.0. Studies from urban and rural areas of Sindh, Pakistan showed that it's most common cancer^{11, 12} but in our study it is 3rd most common cancer. The research on the incidence and epidemiological characteristics of sq. cell carcinoma of the head and neck in Karachi in 1995-2002 showed that approximately (21%) of Head and neck cancers were observed in males and approximately (11%) in females, oral cavity and larynx were the most frequently affected locations, followed by pharynx.¹³

Five years research (2012-2016) from Sindh rural region includes 56% of men and 44% of women. The most prevalent region for tumors in the head and neck was the oral cavity (58%) taken after by the hypo-pharynx¹¹.

Other research revealed Oral cavity malignancies contribute approximately 76.6 percent of all cancers of the head & neck led by larynx¹⁴.

A research by Gurbax Singh suggested that Epidemiological features of head & neck malignancies in a hospital for tertiary treatment, the majority of the

patients belong to the 60-69 age range with males outnumbering females (3:1)¹⁵.

In a research experienced by K. Samson Deva Kumar, the majority of patients were in the 40-60 years age group with males outnumbering females (2.9:1). The main prevailing site was the oral cavity (34%)¹⁶. Similar findings were concluding in our study where oral cavity was the most common site.

One paper published in Journal of Asian Pacific demonstrate the variation in the incidence of head & neck from southern geographic region include Multan, Bahawalpur and few cases of Lahore identified as referrals. Out of those head & neck malignancies treated from 2005-06, the most noteworthy prevalence in rural Sindh was recorded at 22.6%, followed by 13.4% in the province of Punjab, 13.1% in Islamabad, 11.4% in Baluchistan and 8.6% in KPK¹⁷.

The age-specific prevalence of cancer in urban areas was seen but such detail was not available for Pakistan's rural areas¹⁸.

Different radiotherapy centres located in Pakistan's urban areas conducted retrospective review of data on head & neck cancer¹⁹ but such are not available for Pakistan's rural areas.

There are variations in the incidence of oral cancer in the various areas of Pakistan, but the responsible risk factors are more or less the same as betel quid chewing, naswar, smoking and alcohol intake. Quid chewing is a routine trend in all regions of Pakistan.

The latest and easily accessible type is sachet such as, paan, supari, chullia & gutka etc extremely popular among children & young adults, men and women in many areas of the Asian country and is the main cause of poor oral health.

Other risk factors include low socio-economic status, less utilization of natural products & vegetables, a diet with less dietary standard and bad oral hygiene practices²⁰.

Above all the known risk factors, lack of awareness of head and neck cancer and ineffectively running preventive programmes have worsened the scenario.

CONCLUSION

Among all, Oral cancers were the most prevalent. There is predominance of male. Tobacco, Naswar and Gutka are the most common modifiable risk factors and most patients present at an advanced stage. The key obstacles for HNC management are lack of knowledge, low socioeconomic status, and literacy, and thus advanced stage disease presentation. In response to an increase in HNC incidence, we propose establishing national cancer prevention system and cancer treatment centers. Certainly, there is a desperate need to set up a domestic smoking cessation programme. The second tier of patient difficulty was a difference between the medical care professionals and their respective facilities in diagnostic abilities and treatment consensus.

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