ORIGINAL ARTICLE

Epidemiology of Head and Neck Neoplasm's in Balochistan

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ABSTRACT:

Objective: To identifies the type and demographic details of Head & Neck neoplasm (H&NN's) in Balochistan, Pakistan.

Methodology: A retrospective analysis (hospital based) was carried out on 498 consecutive cases fulfilling the requirements of inclusion criteria (subjects having carcinoma of Head & Neck) in Center for Nuclear Medicine and Radiotherapy (CENAR), Quetta, Balochistan from October 10.2012 to October 26.2013. Study variables included demographic factors, enquiries regarding residence, site affected and diagnosis. Data entry and statistical analysis was done by using SPSS version 20. Data was presented in the form of percentages. Subjects having H&NN's were included for study through simple convenient non-probability sampling from CENAR data.

Results: Almost half of the H&NN's subjects belong to Afghanistan (n=216/498), the area critically affected next to Afghanistan having 37.15% of H&NN's was Quetta division (n=185/498), whereas Kalat division with 7.63% carcinomatouss lesion stands third number in this category (n=38/498). Commonest (n=128/498) age range of subjects having H&NN's is between 60-70 years (25.7%). Fifty four percent neoplasm's' (54.02%) were squamous cell carcinoma (n=269/498), Lymphomas with the percentage of 14.26 stands on second frequently existing carcinoma in this class.

Conclusion: The consequences of current research suggests that individuals from Afghanistan comprised highest incidence rate of Squamous cell carcinoma which was commonest in Balochistan whereas second common H&NN's seen in the province was cervical lymph node cancers (lymphomas) in this grouping.

KEYWORDS: Neoplasm, Head and Neck, Balochistan.

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INTRODUCTION

Neoplasm of head and neck (H&NN's) is becoming an alarming situations globally.[1] It includes larynx, pharynx, Naso-Pharynx and oral cavity. [1] Worldwide incidence of H&NN's ranks sixth whereas 25% of all H&NN's are reported in South Asian countries (Pakistan, Bangladesh, Sri-lanka, India, Nepal and Bhutan) thus these regions are characterized as high risk areas. [2] In Pakistan it is the second commonest malignancy in males. [1, 3]

Bhurgari (2006) [4] reported that top ten sites of H&NN's were lip, oral cavity, pharynx and larynx. [2] She demonstrate that in India the incidence of H&NN's is higher in males (12.8%) as compared to females, (7.8%). whereas the level of pharynx carcinoma is many folds higher in males (9.6%) as compared in females (1.8%), however carcinoma of oro-pharynx contribute the highest incidence (28.6%) in India, [4] on contrary, the incidence of H&NN's is double in males (21%) and 11% in females in Karachi, Pakistan. [4] Although

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in Pakistan data related with oral carcinoma is available at national level [3, 5, 6, 7] but it does not encompass the demographic details and its types in Quetta, Balochistan. Therefore, the aim of current study was to record the demographic details and types of H&NN's in Balochistan.

METHODOLOGY

This was a hospital based study carried out in Center for Nuclear Medicine and Radiotherapy CENAR, Balochistan; to find demographic data of patients suffering from H&NN's and its incidence in Balochistan, and most frequent types of H&NN's. The data was recorded from 10th October 2012 to 26th October 2013. Permission to carry out this study was taken from Head of Dental section Letter No 707/HDS, Dated 24 January 2014 which is accepted by the Director of CENAR.

CENAR is the only center for cancer diagnosis and treatment in Quetta, which not only cover the patients of the province but also provides treatment and management to patients of the neighbor country Afghanistan. Data related with H&NN's was gathered; demographic details were also collected and included in the current study. By investigating chart reviews of H&NN's patient's from 10. 10.12 To 26.10.13, data related with age, gender, residence, diagnosis and types of H&NN's respondents of H&NN's was separated and recorded manually by investigator within 2 months (January-February 2015).

Sampling Technique & Sample Size: Through simple convenient non-probability sampling technique 498 samples of H&NN's were recorded from October 2012-13. Inclusion criteria for study population consisted of all registered patients of CENAR suffering from H&NN's during the period of 1 year. Patients having cancer of other sites newly admit patients and patients other than October 2012-13 were excluded from the study to check the level, site of carcinoma and residence of patients suffering from H&NN's.

Statistics: Data was entered in SPSS version 20 and statistical analysis was carried out and was presented in the form of percentages.

RESULTS

The study evaluates residence area and types of H&NN's in Balochistan. It also demonstrates the demographic details of selected patients. Data gathered from CENAR demonstrates that 57% (n=213/498) more than half of these patients were males. Current study shows that 25.7% patients (n=128/498) were above the age of 60 years. Second common age range was above 70 years of age (n= 97/498). Table **1** demonstrates age, gender, number of patients and their percentages.

Table 1. Age and Gender of Head & Neck Neoplasm's patients.

Gender	No of Patient	%age
Males	285	57.2
Females	213	42.7
Age		
>70	96	19%
60-70	128	25.7%
50-60	91	18.27%
40-50	84	16.9%
30-40	39	7.8%
20-30	28	5.6%
<20	49	9.8%

The data showed that 43.37% (n=216/498) belonged to Afghanistan; some of them (21.6%) were residing in Quetta while others came to Quetta for treatment. Map of Balochistan demonstrates patient's residence area and its percentage, whereas Afghanistani affected population can be detected near Western border of Balochistan while Sindhi patients belong to South Eastern border of Balochistan. See Fig. (**1**).

The results pointed out that squamous cell carcinoma was the commonest reported carcinoma followed by Lymphomas and carcinoma of oral cavity becomes 3rd. The type and its percentage of H&NN's in patients are presented in Bar chart. See Fig. (**2**).

DISCUSSION

Majority (57%) of the patients suffering from H&NN's were males, 25.7% of them were above the age of 60 years. Out of these 498 H&NN's patients 43.37% (216) were Afghani citizens. Squamous cell carcinoma was the commonest carcinoma observed in current study (54.02%)

Though Balochistan is the biggest province of Pakistan but unfortunately the population is scattered, poor and illiterate. [8, 9] All these elements affect health of the population. The tendency to register the cases of H&NN's for its management is very low peculiarly in the case of female and child population, and especially in case of

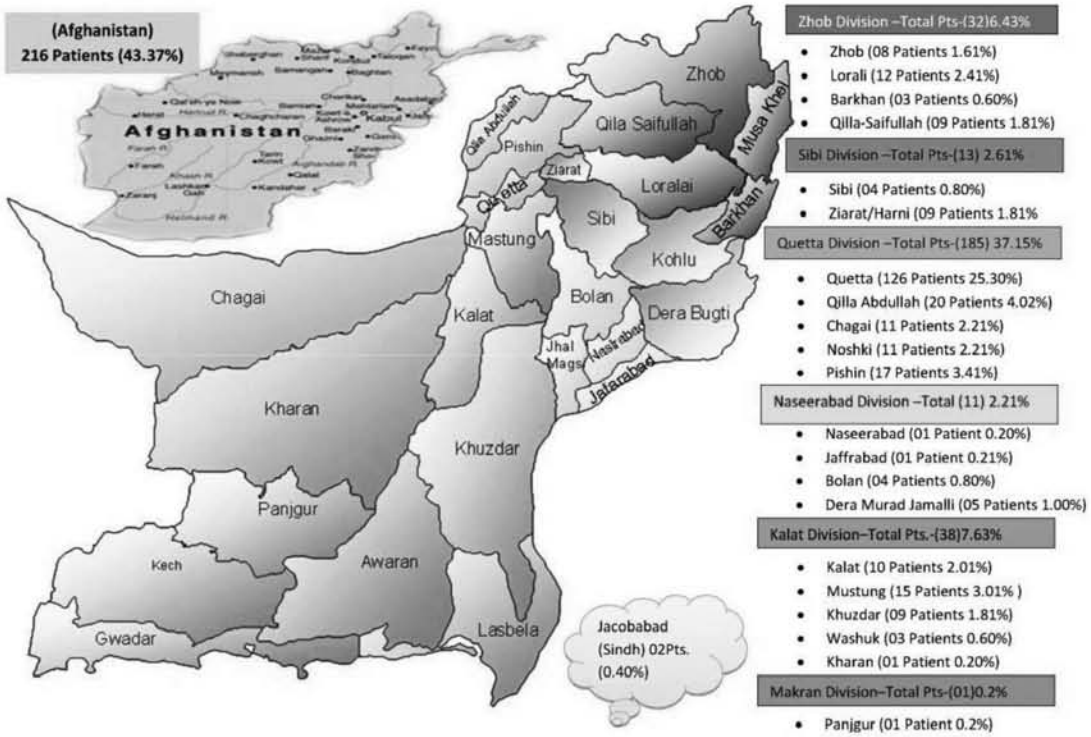

Fig. (1). Map demonstrating Head & Neck Neoplasms Patients & their Residence Area.

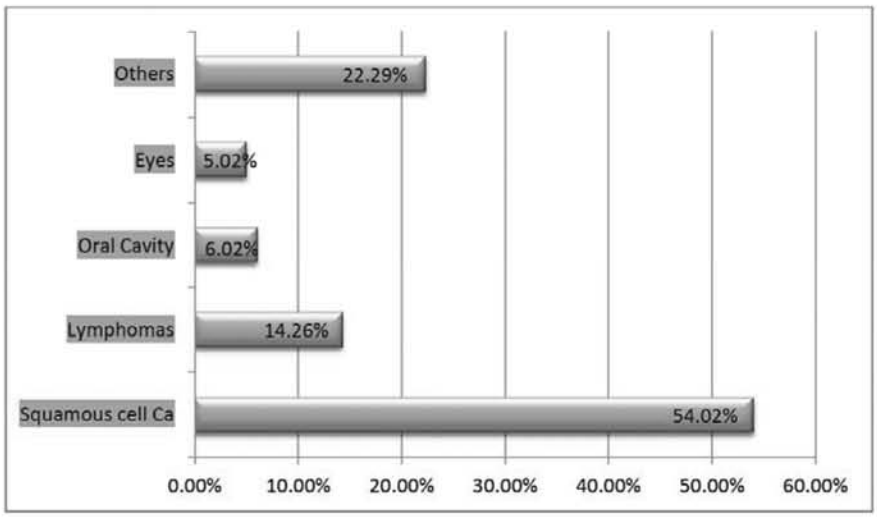

Fig. (2). Types of Head and Neck Neoplasm's in Bar Chart.

periphery due to the lack of facilities. (transport and health facilities) [9, 10] In Afghanistan (neighbor country of Pakistan) the condition is even worse than Balochistan, although the predispose factors remain same as in Balochistan. However, due to the result of US invasion in 2001 people are malnutrished to a greater extent. [11]

Incidence of H&NN's is prominent globally. Majority of studies conducted by Caucasians and Asiatic researchers analyzed that males are more commonly affected by H&NN's as compared to females with M: F ratio of 1.37:1. [12] Previous studies completely matched with the analysis of current study as 57.2% (n= 285/498) H&NN's patients were

males in present study. The eminent degree of H&NN's in Balochistani males may be due to the enhanced consumption of hot beverage particularly black tea, life style changes, naswar consumption, increased use of beef and smoking. [2, 3, 13]

Current study shows that 25% patients having HNN's were above the age of 60 years. This observation is correlated with the study result of Filho MR deM and his co-workers (2013), [13] in their study population (n=29) they observed that 41.4% patients (n=12) were above the age of 60 year. [13]

Forty three percent patients (n=216/498) suffering from H&NN's of current study belong to Afghanistan; however the condition was completely revert in the results of study carried out by Rooh-Ullah *et al* in 2012 [7] where majority of the cases were from Quetta. He mentioned that during the period of 1998 to 2009, out of 10861 (90.34%) cancer patients only 1157 (10.65%) patients have had H&NC's, 698 (12.42%) of them were males and 438 (9.43%) were females whereas there were 21 children. Calculations of his study carried out in CENAR [7] demonstrate that 3211 (29.56%) patients suffering from cancer of different sites were from Afghanistan. Whereas 90 Afghani males patients, 156 females and 8 children were suffering from H&NN's. [7] The results of current study indicated highest level of H&NN's from migrants of Afghanistan, the difference between our study results and results of Roohullah may be due to the increase in migration of H&NN's patients from Afghanistan for the treatment due to lack of treatment facilities in Afghanistan. The possible cause of high incidence level of H&NN's in Afghanistan is mal-nutritution, [14, 15] increased consumption of hot food fluid/solid (hot tea/soup), [16] altered immunity. [17] It may also be the side-effect of heavy bombing during the 2001 US war. [18]

The incidence of H&NN's in Baloch belt including Makran, Naseerabad and Sibi comprises very low rate, where as Kalat also demonstrates bottom line extent of H&NN's (7.63%, 38/498 patients). This low level of H&NN's in this belt is due to the fact that majority of the population belong to low socio-economic status are; illiterate and are unable to recognize the complications of their oral disorders thus unable to register and get treatment. [6, 8] In addition population of periphery is scattered and far away from center of province (Quetta) thus, unable to travel, [10] or it may be due to their movement towards Karachi for treatment purposes. [19] A positive factor of this low level of H&NN's in Baloch population is its clear atmosphere. [20] However; there exists a general misconception in Pakistan that one should visit to the hospital only when he/she becomes ill and people feel that regular health checkup is unnecessary. Many cancers can be detected on routine checkups but due to lack of understanding most of the cancers are diagnosed at late stages when the disease becomes incurable. On the other hand level of H&NN's in Mastung is 3.01% and 1.81% in Khuzdar. The reason behind this high incidence rate in these two areas is that people of these areas have high consumption of smokeless tobacco in the form of naswar and huqqa, [20] in addition to that they also take hot black tea [16] which is another possible cause of H&NN's.

As compared to these rural areas, urban population is literate thus able to distinguish all predisposing elements (Viruses, Chemicals, Genetic defects (hereditary), Tobacco, Alcohol, Food, and Sun exposure) as risk factors of cancer, moreover access to treatment facilities and awareness resources are easy as compared to rural areas. [9, 21]

The higher incidence of H&NN's was observed in Quetta division (n=185/498). The reason behind it is its cup shape appearance which causes air pollution; [20] in addition subjects are malnutrient due to low socio-economic and unable to take fruits, fresh food, vegetables [14] they are using naswar, [20] cigarette [18] and hot tea [16] all these variables enhances development of H&NN's.

In current study, squamous cell carcinoma comprises the most common type of oral carcinoma (269/498). The reason behind it is bulk of the population is consuming smokeless tobacco in the form of naswar, tobacco in cigarette and huqqa etc.[22]Another etiological factor is low socio-economic status which heightens the risk of SCC.[3] Sobin L demonstrated that in 1969 cancer of oral cavity in Afghanistan was very low [23] however; the situation is reversed now and most of the patients suffering from oral cavity neoplasm were from Afghanistan (n=216/498) and majority of them were suffering from squamous cell carcinoma.

Lymphomas were the second commonest cancer in 2012-2013. Most of the patients of cervical lymph carcinoma were from Afghanistan. The reason behind lymphoma (Hodgkin's or Non-Hodgkin) may be poverty, depressed immunity or malnutrition. [23] Results of Sobin L study also identified Lymphomas as second most common carcinoma of Afghani, the rate of occurrence of Lymphomas was 4.7 (n=59/550). This may be the result of low/lack of medical facilities, use of smokeless tobacco, hot black tea etc. [22]

Oral cancer is the third common carcinoma seen in Balochistan. The results of our study correlate with the results of Bhurgai 2006. [4] She observed that Karachi and Balochistan are highest risk zones for oral cancer, where as New Guinea and Solomon Islands also shows prominent incidence rate. [5]

Strength & Weaknesses of Study

Current study provides information about types and sites of H&NN"s in CENAR (Balochistan). Demographic view of patients was also considered which were not available before. All data of H&NN's available in CENAR was not recorded. Current study comprises H&NN's data of only one year.

Need for Additional Research

There is a need to examine high risk populations for educational and investigation programmes. These programmes help in decreasing the burden and unfavorable outcomes of H&NN's.

CONCLUSION

It was concluded that during the period of October 2012-3 most of the patients suffering from H&NN's belong to Afghanistan and were affected with squamous cell carcinoma.

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DISCLAIMER

The abstract of the current study is not presented or published in a conference, or published in an abstract book or any other relevant information.

CONFLICT OF INTEREST

Authors of the study declare no conflicts of interest to disclose. Moreover there is no funding sources related with this search.

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