Pattern of Head and neck malignancies in Central Sudan-(study of 314 cases)

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ABSTRACT

Objective: The objective of this work is to study the patterns of head and neck malignancies (HNM) in central Sudan and to compare it with international published series.

Methods: This is a retrospective study conducted at the Institute of Nuclear Medicine, Molecular Biology and Oncology (INMO)-University of Gezira; Wadmedani, Sudan. The data were collected through reviewing of patients records over 6 years. Parameters analyzed were age, sex, topography and tumor histology.

Results: The total number of patients records reviewed was 314. Age distribution ranged from 11 to 90 years with mean age of 48.79 and median age of 50 years. The male to female ratio was 1.7:1. The most common affected sites in order of frequency were nasopharynx (41.1%), hypopharnx (20.4%), larynx (11.2%), oral cavity (10.5%), salivary glands (4.8%), lips (4.5%), tongue (4.1%) and paranasal sinuses (3.5%). The most common histological types were squamous cell carcinoma (90.77%) followed by salivary gland tumors and lymphomas.

Conclusion:

HNM are common in Sudan, affecting all age groups with predominance in males. Nasopharynx is the commonest site. Further studies for identification of possible risk factors are recommended. Population-based cancer registry is recommended to reflect on the epidemiology of cancer in Sudan.

Key words: Nasopharynx, oropharyngeal, squamous, carcinomas, epidemiology, snuffed tobacco.

Head and neck cancer (HNC) are a group of malignancies that represent all cancers arising in head and neck region. HNC is a major global health issue, with more than half million cases diagnosed annually[1]. Worldwide there is regional variation in the prevalence of HNC[2]. For example, 75% of oropharyngeal cancers are estimated to occur in developing countries and the largest contribution is from Southern Asia. On the other hand cancer at this site is relatively uncommon in developed World like UK, amounting for less than 2% of all new registrations each year[3].

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The commonest epithelium covering the head and neck mucosal surfaces is squamous epithelium and this may explains the domination of squamous cell carcinomas, but any cancer histology can occur due to variety of tissues in this region[4]. Most HNC occur in males over 50 years of age[4]. The signs and symptoms vary with the location of primary site and the stage of the cancer[4- 6].

HNC usually affects people with low income[7]. Tobacco and alcohol consumption are known risk factors for the development of this disease[8-11].

Patterns of HNC differ from country to another. In China and Chinese immigrants the commonest site is the nasopharynx. Different countries have different patterns of distribution in respect to site[4, 5]. In Sudan there is no identified cancer registry yet. Data usually used to be obtained from records of the two cancer centers serving the whole of the Sudan. This is a hospital-based study to reflect roughly upon the burden and the features of HNC in this region of Sudan.

Table (1): Head and neck malignancies site distribution.

Serial NO.	Site	Frequency	Percentage
1	Nasopharynx	129	41.08%
2	Hypopharynx	064	20.38%
3	Larynx	035	11.15%
4	Oral cavity	031	09.87%
5	Salivary glands	015	04.78%
6	Lips	014	04.46%
7	Tongue	013	04.14%
8	Para-nasal sinuses	011	03.50%
9	Oropharnx(tonsil)	02	00.64%
Total		314	100.00%

Patients and Methods:

INMO is one of two centers in Sudan that serve patients with cancer and it has a large catchments area from Central and Eastern States of Sudan, with a population of approximately 13.2 Millions (33% of the Sudan total population) . Hospital records for more than 6 years of patients who were treated in INMO for HNC were studied. The study covered patients who have been treated in the period from May1999 – December 2005. Proportions of HNC to all malignancies were obtained.

All records of HNC were reviewed for age, sex, residence, topography and histology of cancer. Inclusion criteria covered all patients treated for HNC during the period of study. Patients with eye, thyroid and esophageal tumors were excluded from this study. Windows Excel soft wares were used for data entry and analysis. Results were tabulated and presented in percentage form.

Results:

A total number of 314 patients were treated during the period from May1999 to December2005. All records were studied and analyzed. Male to female ratio was 1.7:1.0 Ages ranged from 11 to 90 years with a median age of 50 and a mean age of 48.78 years.

The commonest sites in the order of frequency were nasopharynx (41.08%), hypopharynx (20.38%), larynx (11.15%), oral cavity (10.51%), salivary glands (4.78%), lips (4.46%), and tongue (4.14%), and paranasal sinuses (3.5%). (Table 1).

Squamous cell carcinoma histology was seen in90.77% of patients with various degree of differentiation. Other histological types included salivary gland tumors, lymphomas, anaplastic carcinomas and adenocarcinoma. (Table 2)

Discussion:

HNC incidence if looked at by each sub site may not represent a big issue in cancer epidemiology but often in the literature many people tend to discuss it collectively. Treatment modalities are usually similar in most of the cases and involved a team work (surgeons, radiotherapist, oncologists and pathologists).

In Sudan there is no official cancer registry and there are only two cancer centers to treat all cancer cases in the Sudan (population 40 millions). Sudan shares high incidence of HNC with countries of South-East Asia like South China, India, and Pakistan[12]. Common risk factors in these countries with high incidence may be applied to the Sudan and this is obvious in similarity in having poor communities in these developing countries. Another face of similarity between the Sudan and those countries is the use of chewed and snuffed tobacco, but oral cancer is more common in those countries than in Sudan[13]. In contrast HNC in the United States is rare probably due to possible different environmental and genetic risk factors, where alcohol consumption and smoking were considered as the major risk factors[7, 8]. Epidemiologic studies suggest a strong association between smokeless tobacco and oral carcinogenesis.[9] Smokeless tobacco, snuff dipping, is common in Sudan and used by males mainly and to less extent by aged females. In this study median age and sex distribution of HNC were not different from what was reported in the literature, most of patients were men over 50 years[4].

Table *(2): Histological pattern of head and neck cancer

No	Histology	Frequency	%
1	Squamous cell carcinoma	285	90.77
2	Salivary gland tumors	18	05.73
3	Non Hodgkin lymphoma	11	03.50
	Total	314	100.00

There is some sex and age variation if site is considered separately. Male predominance is similar to literature from India, China and United States[13,14].

This series showed domination of nasopharyngeal cancer similar to what was reported from North Africa and South-East Asia[4, 12] . In the United States the commonest site is larynx and the incidence in nasopharynx is rare[15]. In Saudi Arabia the NPC ranks first among all head and neck cancers[16]. In Yemen; a country with similar cultural and environmental background to Sudan, oral cavity is the commonest site among all HNC[17]. Infection with the Epstein-Barr virus is associated with nasopharyngeal cancer but, little is known about this association of EBV and nasopharynx cancer in Sudan in published literature[14]. Hypopharynx cancer is ranking second in the population of this study but it is rare in some countries like United States and UK, while it is common in France and Spain[18]. The predominant histology is squamous cell carcinoma which is similar to reported figures of Europe and United States[15, 19].

Conclusions and recommendation:

Head and neck cancers in Sudan are common and nasopharynx is the commonest site. Incidence is higher in males and all age group are affected including children. The high incidence of nasopharyngeal cancer invites further studies for identification of possible risk factors. Further studies based on this pilot study can be obtained for specific site. Cancer registry is important as an essential part for cancer management in Sudan.

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