

Head and Neck Cancers four year trend at the Nairobi Cancer Registry.

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SUMMARY

Background: Data on head and neck cancers is scarce in the developing countries including Africa. These cancers are more common in the Western countries. In the USA for instance, over 50,000 new cases occur annually. Head and neck cancers subtypes include oral cancers, oral pharyngeal cancers, larynx and nasopharyngeal cancers. Some of the associated causes of head and neck cancers include oncogenic viruses, irradiation, dietary factors and genetic predisposition. These cancers present a major challenge in their management due to their occurrence near vital structures of the head and neck region. Diagnosis or screening is difficult in the early stages due to the hidden nature of the lesions often resulting in late clinical presentation. Treatment modalities include surgery, radiotherapy and chemotherapy alone or in combination.

Study Design: This was a retrospective study.

Materials and Methods: We reviewed data from the population based Nairobi Cancer Registry (NCR) for the occurrence of Head and Neck Cancers (HNC's) in relation to the frequencies of all cancers registered within the period between 2000-2003. We also determined the demographical, clinical and the histological features of these cancers.

Results: For the period 2000-2003, head and neck cancers comprised over 12.8% (697) of all the 5462 cancers reported from all cancer sites with a male to female ratio of 2:1. Among the head and neck sub-sites, oral cancers were the highest at 40.6%, followed by nasopharynx and laryngeal cancers with 20.8% and 13.8 % respectively. The commonest histology was squamous cell carcinoma.

Conclusion: According to the cancer cases registered with the Nairobi Cancer Registry within the analysed period, Head and neck cancers comprised of a significant problem of all the cancers. They are characterised by high rates of oral and nasopharyngeal cancers.

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Introduction

Head and neck cancers(HNCs) occur in various anatomical subsites within the head and neck region and are classified into several subtypes including oral and oral pharyngeal cancers, larynx and nasopharyngeal cancers (1,2). Various factors have been reported as risk factors for the HNCs. These include alcohol intake ,cigarette smoking, irradiation, oncogenic virus infections like Epstein Barr virus (EBV) and Human Papilloma Virus (HPV). EBV is commonly associated with nasopharyngeal carcinoma and HPV has been associated with laryngeal carcinoma. Human immunodeficiency virus (HIV) on the other hand is associated with Kaposi's Sarcoma (KS) (2,7). Oral and oral pharyngeal cancers have been in particular associated with use of spices, betel nuts, recurrent oral inflammations and HPV (13). Head and

neck cancers present a challenge due to their occurrence near vital head and neck structures. Difficult deglutition, breathing and obstructive swellings are therefore common presentations. Indeed, most of these HNC'S present late due to the hidden nature of their site of occurrence thereby making screening or early diagnosis for these cancers difficult. Oral cancers however are an exception since the oral cavity is very accessible. The treatment of these tumours remains a challenge due to late presentation. Surgery remains the mainstay of treatment for early operable cancers, followed by adjuvant radiotherapy for persistent and recurrent tumours. However, despite advances in medical knowledge, survival rates have not improved. Data on head and neck cancers is scarce in the developing countries including Africa. These

cancers are more common in the Western countries (1,10). In the USA for instance, over 50,000 new cases occur annually. Reliable data from Africa is absent and most of the data are from hospital-based registries or case series as opposed to the gold standard of population -based registries (10). The Nairobi Cancer registry was started in the year 2000 as a population-based registry to fill this gap in cancer registration by collecting cancer data from a defined population.

Methodology

This was a retrospective study based at the registry. The Nairobi Cancer registry data collection is ongoing from year 2000. It covers Nairobi city and its surrounding with an estimated population of 3.5 million. The active collection data is conducted at various healthcare facilities that are registered with the registry. These facilities allow active collection of the data by the registry staff voluntarily. Data are also collected from the registry of deaths simultaneously. This death register therefore provides the mortality status of the registered cancer cases.

The Nairobi Cancer registry uses a special proforma that captures the demographic features, the clinical stage, basis of diagnosis and the status of the cancer cases. The data collected is for all types of cancers and follows the WHO International Coding protocol for diseases (ICD-10).

Once the data is collected, its entered into the registry's data computer base using the Can Reg4 software. CanReg4 software is a special standard software used by all cancer registries under the auspices of the International cancer registries association (IACR) of which the NCR is a member. This assists in standardisation and allows for data comparison between the member organisations. This software is provided under WHO by the International Agency for Research against Cancer (IARC). CanReg4 software avoids double entries for patients who would have sought care from more than one healthcare facilities where data is collected from.

In this study we sought to find the demographic, clinical status, histology and sites of occurrence of head and neck cancers.

From this database, we proceeded to extract data on head and neck cancers and using MS-excel worked out the relevant statistics for the study.

Results

During the period 2000-2003 a total of 697 head and neck cancers were recorded out of a total of 5462 cases from all cancer sites. This comprised of 12.8 % of the total cases. The male: female ratio was 2:1 (male:17.6% and female: 7.2%) . These cases were seen at various healthcare centers in Nairobi area.

Table 1:Sources of Head & Neck Cancers reported from 2000 to 2003:

Source Name	No.Of Cases	Percentage. (%)
ACACIA LABORATORY	1	0.1%
ARMED FORCES MEMORIAL	5	0.7%
AVENUE NURSING HOME	10	1.4%
COPTIC CHURCH NURSING	1	0.1%
DEATH CERTIFICATE ONLY	52	7.5%
EQUATOR NURSING HOME	13	1.9%
KENYA MEDICAL RESEARCH	1	0.1%
KENYATTA NATIONAL HOSPITAL	261	37.4%
M.P. SHAH HOSPITAL	10	1.4%
MATER MISERICORDIAE HOSPITAL	11	1.6%
MBAGATHI DISTRICT HOSPITAL	4	0.6%
MEDICAL IMAGING & THERAPEUTIC CENTRE	20	2.9%
NAIROBI HOSPICE	133	19.1%
THE PATHOLOGY CLINIC	6	0.9%
NAIROBI PATHOLOGY SERVICES	3	0.4%
NAIROBI WEST HOSPITAL	3	0.4%
NAIROBI WOMENS HOSPITAL	1	0.1%
SOUTH B. NURSING HOME	3	0.4%
THE AGA KHAN HOSPITAL,NAIROBI	23	3.3%

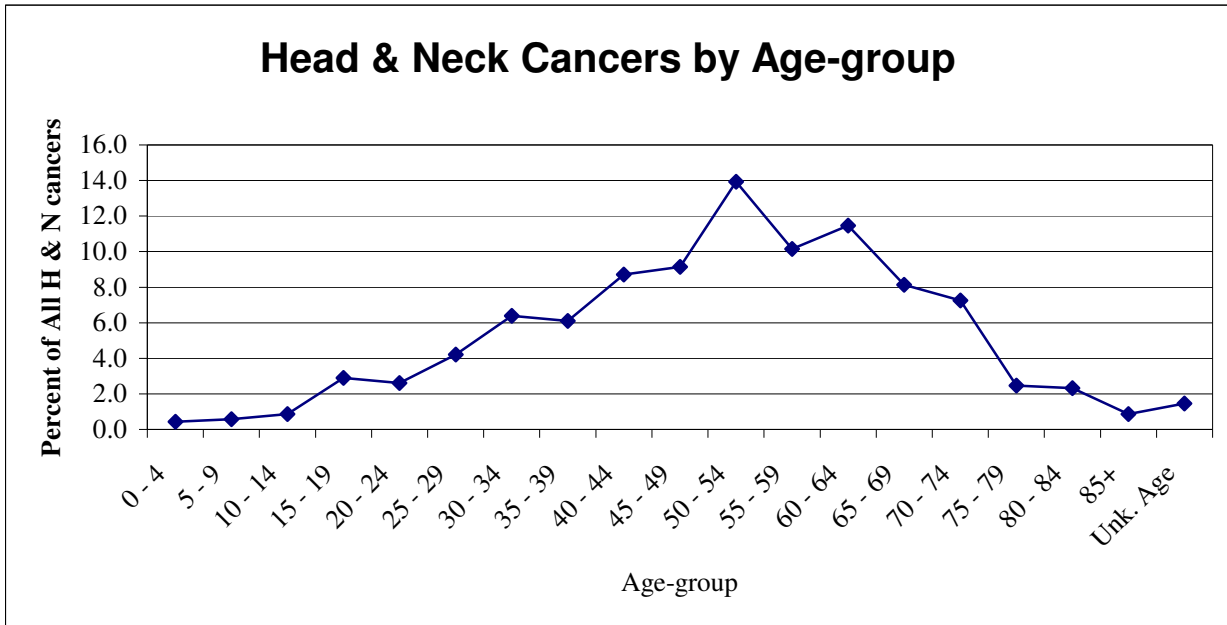
THE NAIROBI HOSPITAL	54	7.7%
UON - DENTAL SCHOOL	82	11.8%
Grand Total	697	100.0%

A substantial number of cases were seen at Kenyatta National Hospital 261 (37.4%) followed by Nairobi Hospice 133 (19.1%), U.O.N Dental school 82 (11.8%). This may be attributed to the fact that they are

referral points for other smaller hospitals offering various oncological services.

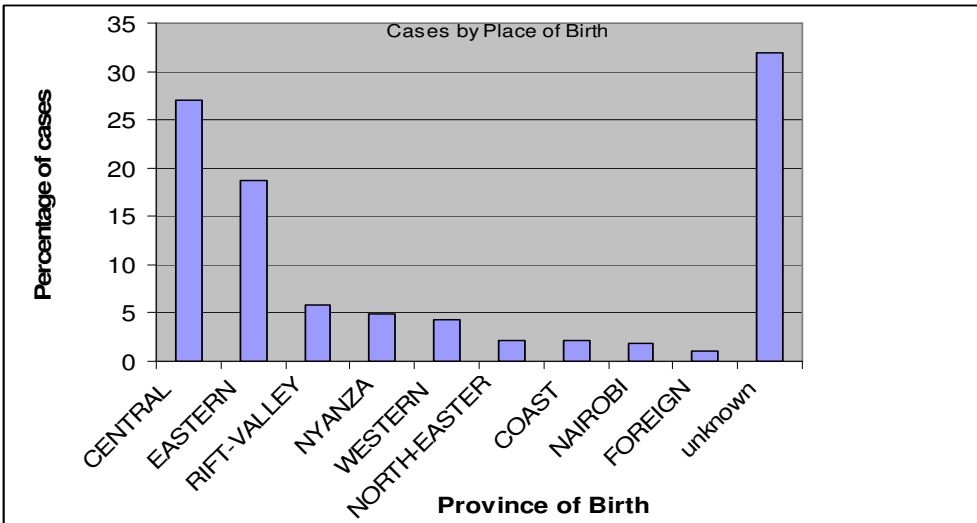
The percentage indicated for each data collection site does not include those patients that sought care from more than one centre but only from that site alone.

Figure 1: Head & Neck Cancers by age-group



It is noted that the 50-54 years was the most affected age-group followed by the 60-64 years age group.

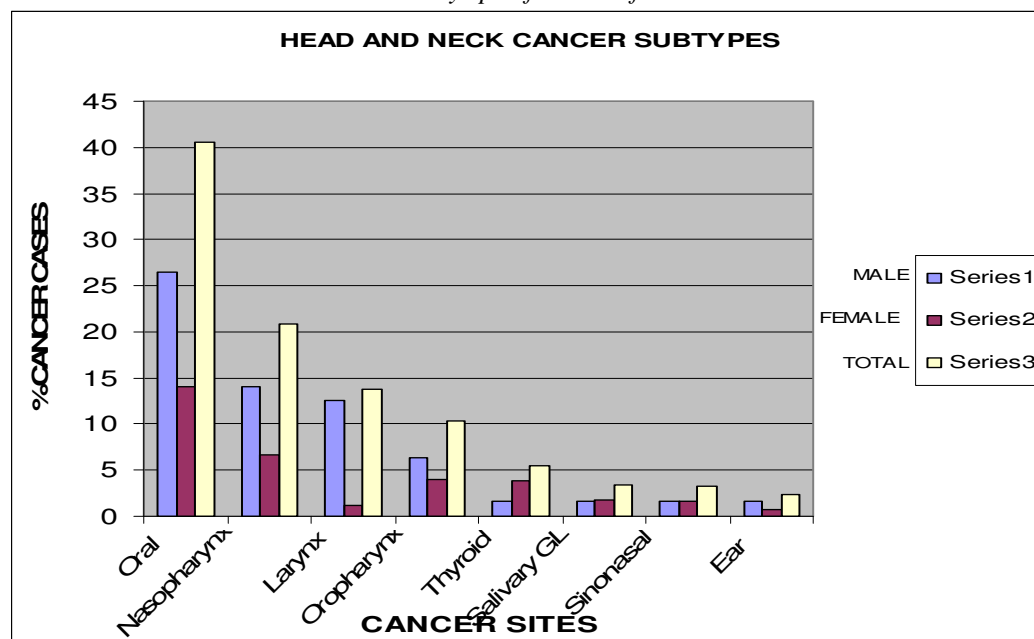
Figure 2: Analysis of cases by place of Birth



From the data above Central and Eastern provinces had the highest cases at 27.5% and 18.75% respectively

(figure 3). Unknown denotes cases whose origin could not be determined.

FIGURE 3 : *Head and Neck cancers by specific sites of occurrence*



The data showed that oral cancers at 40.6% were leading followed by nasopharynx at 20.8% and then nasopharyngeal cancers at 13.8%. ORAL: includes, floor of the mouth, alveolus (GUM), lip, palate and tongue proper. OROPHARYNX : include pharynx, tonsils, tongue base.

Table 3: Common Histologies of Head and Neck cancers

Squamous cell carcinoma	37.3%
Carcinoma, NOS (not otherwise specified)	19.7%
Anaplastic carcinoma	10.2%
Kaposi sarcoma	5.1%
Adenocarcinoma	2.9%
Adenocystic carcinoma	2.9%
Others	21.9%

The commonest overall histological type of cancer is squamous cell carcinoma.

Discussion

Collection of data for the registry involved several locations (Table 1) but this was not exhaustive. Several healthcare centers declined to participate in this ongoing process. This was because there is no policy obligation for healthcare sites to issue data to the registry. This therefore could have limited the numbers from Nairobi, obscuring the true burden of cancer.

The findings of this study shows showed 697 cases recorded in four-year period compared with a study in Jos, Nigeria for 15 years recorded 710 cases (6), and in Ife city they found 313 cases during a ten-year period (7). A recent study hospital study in Nairobi found 793 cases during a two-year period. However, these patients were from all over the country and not just Nairobi (8).

The head and neck cancers were more common in the males than females at a ratio of 2:1. This has also been found in other reports locally and in other countries (2,3,6,7,8). In the USA the male to female ratio was 2.3:1 with the incidence reported to increase with age (9, 11). In Nairobi, it was noted that the 50-54 years age group was the most affected followed by 60-64 year age group (Figure 1). Ologe in Ilorin Nigeria found a peak age in fifth decade (7). These ages are comparatively lower than those of the West with the peaks late by one to two decades. In other words, the cancers are occurring in comparatively younger people in our African setup.

In terms of the residence, most of the patients came from Nairobi followed by Central and Eastern provinces. However, when the data was analyzed by place of birth the majority of patients were found to be from Central and Eastern provinces at 27.5% and 18.75% respectively. Very few were born in Nairobi area itself. It was not deducible from this study why most patients were from Central and Eastern provinces other than the provinces' proximity to Nairobi. However, a large figure of unknown residence or birthplace was due to unavailable records. This was repeated in other parameters like clinical staging. From the data, most hospital records indicated only late clinical stage IV at a mere 2%, the majority of the tumours (98%) having not been staged at all. Poor record keeping and lack of proper staging has been reminiscent in many developing countries (2,6,7,10).

The majority of head and neck cancer subgroups corresponding to the various sub-sites were oral cancers at 40.6% followed by cancers of the nasopharynx at 20.8% and then larynx. This differs from other studies in Kenya in which laryngeal cancer was found to be the leading head and neck cancer (8). This difference may be because the Nairobi Cancer registry is population-based and not hospital-based registry. A survey of the

national data in the USA found incidences of oral cancers at 40%, laryngeal cancer at 25% and Nasopharyngeal carcinoma (NPC) was at 20.8% (11). Trends in Kenya tend to be similar in oral and laryngeal cancers in with the USA but are comparatively higher for NPC locally compared with USA and relatively moderate compared to China (9,11).

Whereas, the high incidence of oral cancers in the USA and other western countries is associated with human papilloma virus infections, it is difficult to tell this from our set up at this stage since no epidemiological or molecular studies have been done on oral cancers and HPV. Otoh et al in Nigeria found similar trends reporting the most common cancer sites as oral cancers at 15.1% and nasopharyngeal cancers at 11.7%. However, their numbers were comparatively lower than in Nairobi probably because theirs was a hospital-based registry study (6).

The microscopic verification (M/V) ratio in this study was found to be over 80%. This is higher than expected for population-based registries in the developing world (1,10). The reason could be that most of the patients with head and neck cancers in the whole country eventually get treated in Nairobi hence the M/V ratio approximates that of a hospital registry. Increased case finding from the smallest health unit will increase the absolute numbers and thus would lower the M/V ratio to acceptable level.

In this study squamous cell carcinoma remained the leading histological type across the cancer types varying from 70% to over 90 % of all cancers. This is also the predominant histology in head and neck cancers worldwide (1, 3, 6, 7). This was followed by anaplastic carcinomas, which are common in the nasopharyngeal tumours (Table 3). It was however a rare histology in laryngeal cancers or oral cancers. Adenocarcinomas and adenocystic carcinomas were uncommon in all the sites and overall in head and neck cancers. This trend is similar in the USA, where over eight sites had predominantly squamous cell carcinoma including larynx and oral pharyngeal tumours at more than 90% (9,11).

One of the salient and challenging out come of this analysis is the poor levels of staging for cancer. Most of the cancers were poorly staged or the records could not be verified. However, since the records indicated only the clinical staging or TNM (Tumour, Node, and Metastasis) system, it was possible that most of the unknown were merely late presentations and therefore either at stages three or four.

However, the unusually large percentage of head and neck cancers with no clinical stage indicated in the

healthcare records (60%) calls for urgent remedial

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action by all concerned parties.