Analysis of 155 cases of head and neck cancers seen over a 3-year period at University of Port Harcourt Teaching Hospital

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Abstract

Objective: Head and neck cancers are group of malignancies that affect the head and neck region. They remain a serious public health concern worldwide with more than half a million cases diagnosed annually. The prevalence and presentation vary from one region to the other. The purpose of this study is to determine the pattern of presentation of this lesion in the University of Port Harcourt Teaching Hospital (UPTH).
Method: Records of all histologically diagnosed head and neck cancers during the study period were retrieved from the Cancer Registry of UPTH. Information collected were age, sex, histopathological diagnosis and site of primary lesion. The data were analyzed with SPSS version 20 and summary statistics of frequency and central tendency were presented.
Result: There were 155 patients comprising 95 (61.3%) males and 60 (38.7%) females, giving a male to female ratio of 1.6:1. The age range of the patients was 1-85 years with a mean age of 37.8±20.6. The highest incidence of HNC was found in the 40-49 (18.7%) age group while least number of patients was found in the 80-89 (2.6%) age group. Carcinomas (44.5%) was the most common malignant lesion with squamous cell carcinoma been the most common. The next most common lesions were the Lymphomas (25.8%). The neck (29.7%) was the most commonly affected site followed by the oral cavity (22.5%) while the parotid region and the larynx with 1.9% respectively were the least affected sites.
Conclusion: Squamous cell carcinomas were the most frequent HNC seen in our centre and the patients within the 5th decade were most frequently affected with male predominance. Common sites affected were the neck, oral cavity, eye, and the nasopharynx.

Key words: Head and Neck, Cancers, Port Harcourt

Introduction

Head and neck cancer (HNC) are a group of malignancies that represent all cancers arising in head and neck region. HNC remain a major public health concern all over the world[1,2,3], with more than half million cases diagnosed annually[4,5].
The prevalence of HNC varies across the regions worldwide. For example, 75% of oropharyngeal cancers are estimated to occur in developing countries and the largest contribution is from Southern Asia[4,5]; while they constitute 5-8% of all cancers in Europe and North America[2,3]. Aetiological factors in cancer pathogenesis have implicated genetic, cultural, occupational, environmental and social factors[1,3,6]. Excess tobacco and alcohol consumption are the most important of the known predisposing factors. Recent studies have shown an inverse relationship of fruits and vegetables intake with HNC[7,8,9] while a diet rich in red meat and fats pose increased risk[8,9]. The lower socioeconomic group tends to have higher risk of HNC[9,10]. HNC have been proposed to have a viral aetiology like human papilloma virus (HPV) and Epstein-Barr virus (EBV)[9,11]; as well as being associated with various chromosomal deletions and other alterations, most frequently involving the chromosomes 3p, 9p, 17p, 13q and mutations in tumor suppressor genes like p53[12].
The high morbidity associated with HNC is due to their interference with breathing, swallowing, taste, hearing, smell, speech and vision[3,13]. While their management and prognosis largely depends on accurate and timely diagnosis, definitive diagnosis is generally made by histological evaluation.
The pattern of occurrence of head and neck cancers varies between races and from one geographical area to another[2,3,6,14,15]. Literature review of twenty-seven relevant published articles on HNC in Nigeria from 1968 to 2008 by da Lilly-Tariah et al[17] show that the age of patients with HNC ranged from nine months to over 80 years with peak between 3rd -6th decade of life. The male to female ratio ranged from 1:1 to 2.3:1. Other previous studies carried out in Nigeria also report that 73.5-91 % of head and neck cancers were of epithelial origin, mostly squamous cell carcinoma[1,3,6,15]. The commonest sites for HNC in Nigeria were nasopharynx and nasal/paranasal sinus[1,6,14,16].

At the moment, epidemiologic studies relating to the histopathological spectrum of head and neck cancers are not common in the Niger Delta region of Nigeria. The aim of this study therefore, was to assess the histopathological types, age and gender distribution, and sites of primary lesion of head and neck cancers in Port Harcourt, Nigeria. The result of this epidemiological study will serve as baseline data and can be used to guide the future funding of public health programmes geared towards prevention and management of HNC.

Materials and method

A retrospective review of 155 patients with head and neck cancers seen during a 3year period (January 2010 to December 2012) at the University of Port Harcourt Teaching Hospital was carried out. The University of Port Harcourt Teaching Hospital is located in the South-South region of Nigeria. The hospital is a major referral centre for several constituent states of Southern Nigeria in the region.

Depending on the site and size of lesion, biopsy specimens were obtained by excisional, incisional, curettage or punch biopsies. Tissue specimens were submitted for histopathological examination using light microscopy and special staining techniques after standard procedures if required. The information of patients who had histopathological diagnosis of HNC was obtained from the Cancer Registry of the hospital. The case records of these patients were reviewed and the following data were obtained: age, sex, histopathological diagnosis and site of primary lesion. The data were analyzed with SPSS version 20 and summary statistics of frequency and central tendency were presented. Cross tabulations were also done to see differences between groups. An observation was assumed to be significant if the P value < 0.05.

Result

There were 155 patients comprising 95 (61.3%) males and 60 (38.7%) females, giving a male to female ratio of 1.6:1. The age range of the patients was 1-85years with a mean age of 37.8±20.6 while the median age was 39.0 years. The highest incidence of HNC was found in the 40-49 (18.7%) age group, this is followed by 30-39 (16.1%) age group, and the 80-89 (2.6%) age group had the least number of patients **(Table 1)**. **Table 1** also showed that more males were affected in all age groups except the 20-29 year group where more females were affected and the 80-89 group where only females were affected.

The commonest histologically diagnosed HNC in our study were carcinomas accounting for 44.5% of all malignant lesions with squamous cell carcinoma accounting for 63.5% of these and 25.8% of all malignant lesions. The next most common malignant lesions were lymphoma accounting for 25.8% **(Tables 2 and 3)**. Fifty percent of the patients with lymphomas in this study were of the non-Hodgkin's variety. Rhabdomyosarcoma is the most common sarcoma in this study constituting 55.3% followed by neurofibrosarcoma (31.6%). Retinoblastoma is the most common malignant eye tumour of childhood and it accounts for 100% of the blastoma in our study.

Table 1: Patients distribution by Age and Sex

Age groups	Sex of Patients		Total
(years)	Female	Male	
0-9	6	10	16(10.3%)
10-19	3	14	17(11.0%)
20-29	10	10	20(12.9%)
30-39	11	14	25(16.1%)
40-49	8	21	29(18.7%)
50-59	9	11	20(12.9%)
60-69	7	10	17(11.0%)
70-79	2	5	7(4.5%)
80-89	4	0	4(2.6%)
Total	**60(38.7%)**	**95(61.3%)**	**155(100.0%)**

Table 2: Patient distribution by histological diagnosis and age groups

	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total
Adenocarcinoma	0	0	2	4	3	1	2	0	0	12(7.7%)
Hodgkin's lymphoma	3	4	2	2	2	2	0	0	0	15(9.7%)
Burkitt's lymphoma	4	0	0	0	0	0	0	0	0	4(2.6%)
Follicular carcinoma	0	0	1	3	1	1	1	0	0	7(4.5%)
Mucoepidermoid Carcinoma	0	0	1	0	1	0	1	0	1	4(2.6%)
Neurofibrosarcoma	0	0	5	0	1	2	2	1	1	12(7.7%)
Non Hodgkin's lymphoma	1	0	2	5	7	4	0	2	0	21(13.5%)
Rhabdomyosarcoma	2	8	1	1	7	0	1	0	1	21(13.5%)
Retinoblastoma	6	1	1	0	0	0	0	0	0	8(5.2%)
Squamous cell carcinoma	0	3	4	7	6	9	7	3	1	40(25.8%)
*Others	0	1	1	3	1	1	3	1	0	11(7.1%)
Total	16 (10.3%)	17 (11.0%)	20 (12.9%)	25 (16.1%)	29 (18.7%)	20 (12.9%)	17 (11.0%)	7 (4.5%)	4 (2.6%)	155 (100.0%)

P=0.000, Correlation coefficient = 0.327

*Others:Papillary Carcinoma,Basal Cell Adenocarcinoma, Malignant Haemangiopericytoma, Melanoma, Kaposi Sarcoma,Osteosarcoma, Haemagioendothelioma.

Table 3. Patient distribution by sites and histologic type

Primary sites	Histologic types				Total
	Carcinoma	Lymphoma	Sarcoma	Blastoma	
Oral cavity	17	7	13	1	38(24.5%)
Eye	6	1	4	7	18(11.6%)
Nasopharynx	12	1	4	0	17(11.0%)
Face	5	0	3	0	8(5.2%)
Neck	7	27	12	0	46(29.7%)
Thyroid	10	0	0	0	10(6.5%)
Parotid	3	0	0	0	3(1.9%)
Larynx	3	0	0	0	3(.9%)
Ear	4	0	2	0	6(3.9%)
Lymph Node	2	4	0	0	6(3.9%)
Total	**69(44.5%)**	**40(25.8%)**	**38(24.5%)**	**8(5.2%)**	**155(100.0%)**

The pattern of histological diagnosis with regard to age category showed that: Hodgkin's lymphoma; Burkitt's lymphoma; retinoblastoma and rhabdomyosarcoma were common in the 0-19 age group; while adenocarcinoma, follicular carcinoma, non-Hodgkin's lymphoma, neurofibrosarcoma and squamous cell carcinoma predominate among the 20-59 age groups. This observation was statistically significant with a P valve of 0.000 **(Table 2)**.

Table 3 also showed that the most commonly affected site was the neck accounting for 29.7% of all lesions this is followed by the oral cavity with 22.5% and the eye with 11.6%. The least affected sites were the parotid region and the larynx with 1.9% respectively. The neck was the most common site for lymphomas (67.5%), while oral cavity was the most common site for sarcomas (34.2%), while nasopharynx was the most common site for carcinomas (17.3%) and the eye was the most common site for blstomas (87.5%). This observation was also statistically significant with a P valve of 0.025 and correlation coefficient of 0.180.

Discussion

The age and sex distribution in this study is similar to what was earlier reported in the literatures, most of the patients were males in their 4th and 5th decade of life[1,3,5,17]. Though reports from Jos and Maiduguri in Northern Nigeria[6,18,19] show a peak incidence in the 3rd and 4th decades while reports from Ibadan (South west) Nigeria[20, 21] showed a peak incidence in the 6th decade of life. The trend of HNC predominating in the youthful age groups in Nigeria and Africa[22] is in contrast to reports from South East Asia and Western world in which HNC are found in the 6th-8th decade of life[3,23,24]. The male to female ratio of 1.6:1 in this study is within the range of 1:1 to 2.6:1 reported in other Nigerian studies[1,3,6,18-20].

The high incidence of squamous cell carcinoma among HNC patients in our study is in agreement with other local and international studies[1,3,19-23,25,26,]. However, it should be noted that two previous studies in Nigeria have reported lymphomas as the most common HNC cancers followed by squamous cell carcinoma [18,27]. Squamous epithelium is predominant in the head and neck region serving either as surface epithelium of mucosa lining and are exposed to aetiological agents of cancers like radiation (ultraviolet radiation) and other chemical carcinogens (through the oral or nasal cavities). This may explain why squamous cell carcinomas are predominant in the head and neck region.

In this study, the commonest site for occurrence of HNC is the neck, this is in contrast with most reports from other part of the country [1,3,19,20,25,28] and Kenya[22] where nasopharynx, oral cavity and larynx have been reported as the most commonly affected sites. This reason for this variation is not clear and may require further studies.

Most HNC in this study are carcinomas in agreement with other reports, however, the incidence of 44.5% of carcinomas in our study is low when compared to previous studies carried out in Nigeria in which 73.5-91 % of HNC were of epithelial origin[1,3,6,15]. Also, the finding that squamous cell carcinoma were the most predominant carcinomas is in agreement with the reports of other studies [1,3,6,21,25].

Lymphomas were the second most frequent cancer type seen in this study accounting for 25.8%, which was similar to earlier studies[18,19,21,28,29]. Though Nwawolo et al.[1] in Lagos and da Lilly-Tariah[6] in Jos found sarcomas to be the second most occurring histologic type. The frequent occurrence of lymphoma can be attributed to AIDS and other immunodeficiency disorders[2, 3].

Conclusion

Squamous cell carcinomas were the most frequent HNC seen in our centre and the patients within the 5th decade were most frequently affected with male predominance. Common sites affected were the neck, oral cavity, eye, and the nasopharynx.

The pattern of head and neck cancers observed in the present study, despite the obvious limitation of not being population-based, provides reliable information on the histopathological spectrum of head and neck cancers in the Niger Delta region of Nigeria that will be useful for health planning, cancer control, and future research.

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