

The Head and Neck Tumours in Benin-City, Nigeria: Any Correlation with Risk Factors?

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ABSTRACT

Objective: The objective of this study was to examine the clinical presentations of the head and neck tumours (HNTs) in Benin-City, Nigeria and to assess if any correlations exist with the known risk factors.

Methods: This study was a prospective clinical study involving all consecutive and consenting patients presenting with symptoms and signs suggestive of head and neck cancers to the Department of Ear Nose Throat Head and Neck Surgery, University of Benin Teaching Hospital, Benin-City, Nigeria. The study was done between January 2012 and December 2016. Data for the study were obtained by clerkship, physical examination, radiological examination and histological assessment.

Results: Age distribution of the patients revealed a rise in head and neck tumours from the 4th decade, to a peak in the 6th decade. Thereafter a decline through the 7th, 8th and 9th decades. Gender distribution of the patients showed that more males (78, 70.0%) are involved than the females (33, 30.0%). Alcohol intake and smoking were the most common identified risk factors to developing HNTs. The least implicated in this study were asbestos, heavy metals and family history. Smoking appeared to be a predictor of the HNTs ($t, -2.902$; sig, 0.005). The most common histologic diagnosis was squamous cell carcinoma accounting for 71.2% of all the cases; with more than half of these described as well differentiated.

Conclusion: HNTs are related with risk factors such as smoking, alcohol and exposures to hydrocarbons; though with low reportage. The authors expressed the opinion that increased national reportage and creating awareness of the risk factors will go a long way to minimize incidence and therefore suggest equipping of regional cancer centers and appropriate health care to reducing the burden of cancers in Nigeria.

Keywords: Head and neck tumours, benign, malignant, risk factors.

INTRODUCTION

The term 'tumour' literally means any abnormal growth. In pathological parlance, a tumour is a growth which has persisted after the cessation of the initial stimulus that provoked such a growth (Bruce et al., 2003). The term tumour can be used interchangeably

with neoplasm, which means a new and abnormal growth. Tumours can be benign or malignant. The

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malignant tumours are the cancers. The head and neck tumours (HNTs) refer to the tumours of the mouth, ear, larynx (voice box), nasal cavity and pharynx (throat). The mouth includes the lips, tongue, buccal mucosa, gingiva, floor of the mouth, palate and associated salivary glands (World Research Fund/American Institute for Cancer Research, 2018).

Cancers of the mouth are termed oral cancers. These are cancers of the upper aerodigestive tract. They include cancer of the lips, labial and buccal mucosa, anterior two thirds of the tongue, retromolar pad, floor of the mouth, gingivae and the hard palate. Cancers of the mouth are excluded in this present study. Included in this study are tumours of the oropharynx, nasopharynx and hypopharynx, ear, nose, throat, the sinuses, salivary glands and the thyroid gland.

HNTs are a major form of cancers worldwide. Literature shows an annual incidence of HNTs worldwide is more than 550,000 cases with about 300,000 deaths per year (Jemal et al., 2011). There is male preponderance, with a male to female ratio of HNTs ranging from 2:1 to 4:1 (Union for International Cancer Control, 2014). About 90% of all head and neck cancers are squamous cell carcinomas (SCCs), and most of these arise from the epithelial lining of the oral cavity, oropharynx, larynx and hypopharynx (Kreimer et al., 2005; Boyle and Bernard, 2008).

Researchers have proposed an avalanche of risk factors for cancers, including consumption of tobacco in various forms with or without alcohol, low socioeconomic status leading to poor oral and dental hygiene, poor diet, male gender, infections of viral origin, chronic irritation, dietary exposures and insufficiencies as well as genetic susceptibility (Ghani et al., 2003; Drummond et al., 2005; Lin et al., 2011; Alam et al., 2017).

HNTs are a major form of cancers in India, accounting for 23% of all cancers in males and 6% in females (Alam et al., 2017). It is also very common in some countries such as Pakistan and Taiwan, and in some areas of France (Mayne et al., 2006). To put the menace of HNTs in perspective, it is on record that currently in Canada, more cases of these cancers are diagnosed in a year than the cervical or ovarian cancer; furthermore, more deaths occur from the HNTs than from melanoma or cervical cancers (Laronde et al., 2008).

Whereas facts and the figures about HNTs are high worldwide; this is not so in Africa generally, and particularly in Nigeria, due to poor record keeping and

under-reportage rather than an actual low occurrence of the disease (Arotiba et al., 1999; Oji & Chukwuneke, 2007; Lawal et al., 2013). This study therefore is aimed to examine the clinical presentations of the head and neck tumours in Benin-City, Nigeria and to assess if any correlations exist with the known risk factors.

MATERIALS AND METHODS

This study was a prospective clinical study involving all consecutive and consenting patients presenting with symptoms and signs suggestive of head and neck cancers to the Department of Ear Nose Throat Head and Neck Surgery, University of Benin Teaching Hospital, Benin-City, Nigeria. The study was done over a five-year period (January 2012 to December 2016). Data for the study were obtained by clerkship, physical examination, radiological examination and histological assessment. All cases suspected to be head and/or neck tumours were enrolled into the study, and those confirmed to be neoplasms were included in the final analysis. Data of interest included sociodemographic of participants and diagnosis of the lesion. Regression was done to test significance of risk factors as predictors of HNTs. The results were presented as bar and pie charts and tables.

RESULTS

A total of 8457 patients came for ear, nose and throat consultation during the study period. Among these patients were 111 patients with tumours. Age distribution of the patients with HNTs is as shown in Figure 1. There was a rise in head and neck tumours from the 4th decade, to a peak in the 6th decade. Thereafter a decline through the 7th, 8th and 9th decades.

Analysis of the gender showed that more males (70.0%) were involved than the females (30.0%) (Figure 2). Of the identified risk factors, alcohol intake and smoking were the most common factors to developing HNTs. Asbestos, intake of heavy metals and family history were the least implicated (Figure 3). Furthermore, smoking proved to be a significant predictor of HNTs ($t = -2.902$; sig. 0.005), (Table 1).

Whereas the predominant clinical feature was swelling; bleeding from the ear and tinnitus were the least seen clinical features (Figure 4). Larynx was the most frequent site (Figure 5). Squamous cell carcinoma was the most frequent diagnosis (Figure 6).

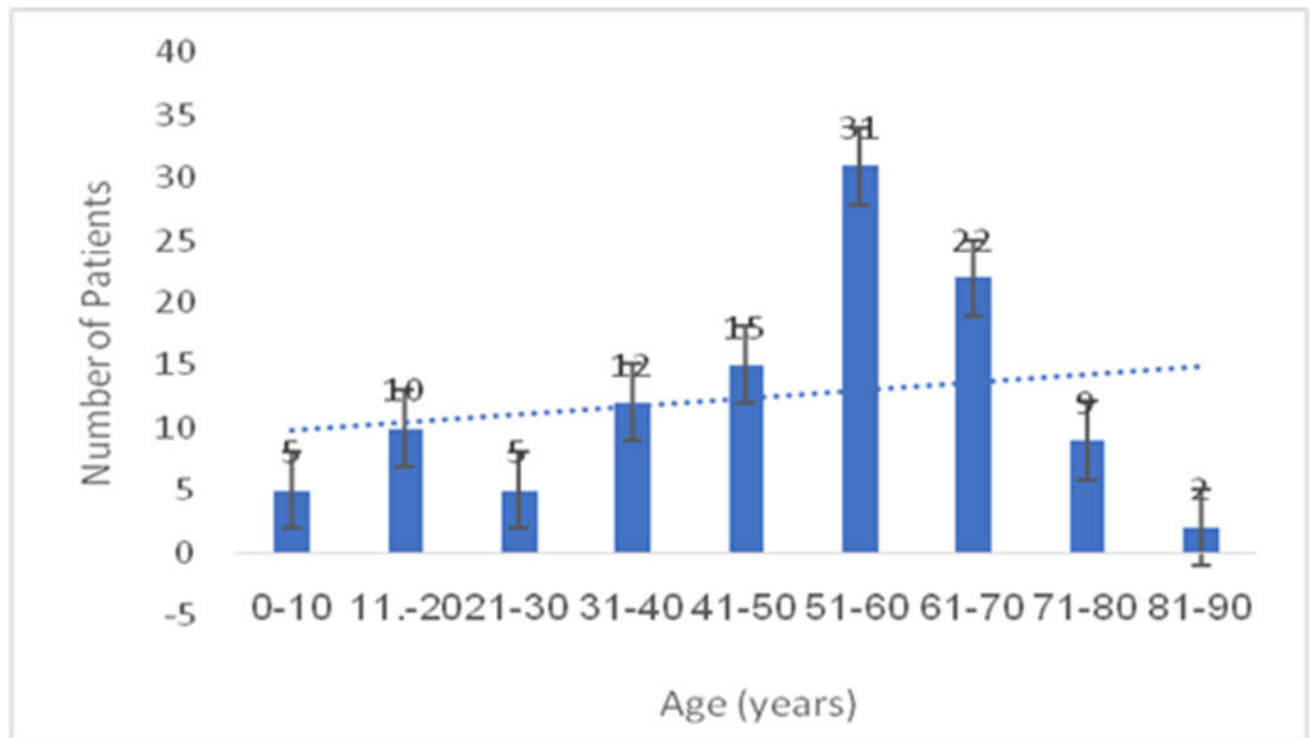


Figure 1: Age distribution of the patients

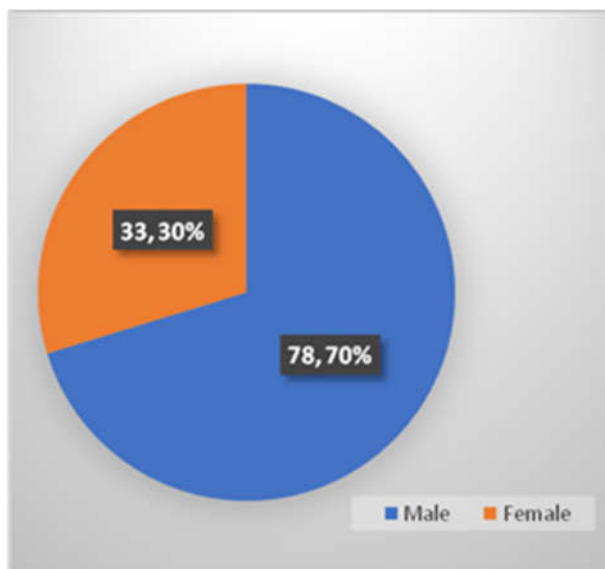


Figure 2: Gender distribution of the patients

DISCUSSION

Tumours generally have emerged and remained major source of economic burden, psychosocial problems, physical morbidity and mortality worldwide. During the period of study, 111 of the 8457 patients were diagnosed of HNTs, giving a period prevalence of 1.3% of patients seeking ear, nose and throat consultation. This figure will be higher if the oral cancers presenting at the same period were included in the calculations. This study showed that the HNTs peaked in the sixth decade of life. This finding is lower than what has been documented by the Cancer Treatment Centers of America (CTCA) in 2018. CTCA has noted that as with many cancers, the risk of developing head and neck cancers increases with age, with most people being over the age of 65.

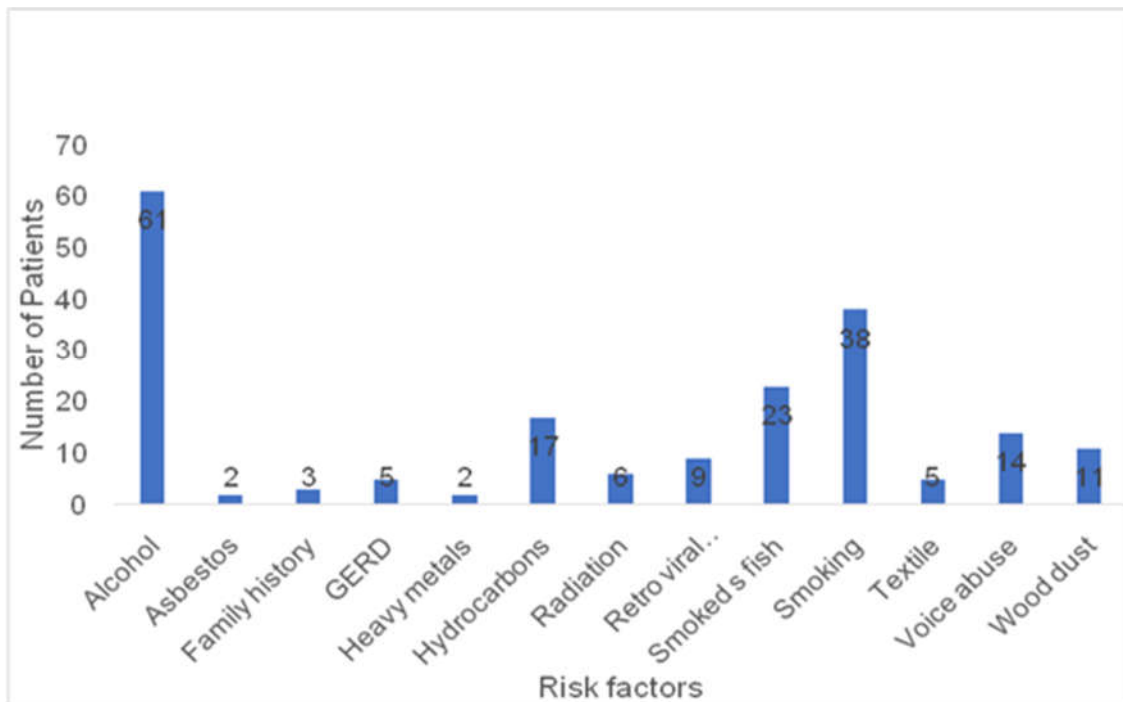


Figure 3: Risk factors among the patients

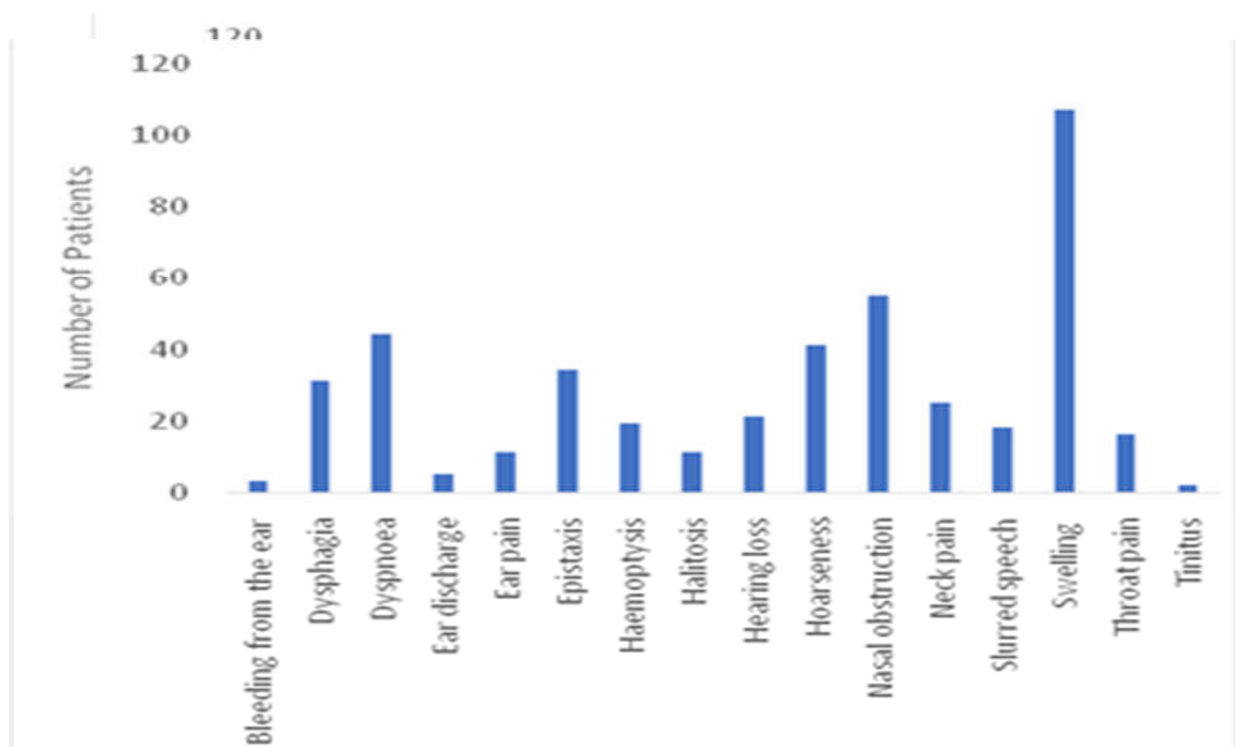


Figure 4: Clinical features among the participants

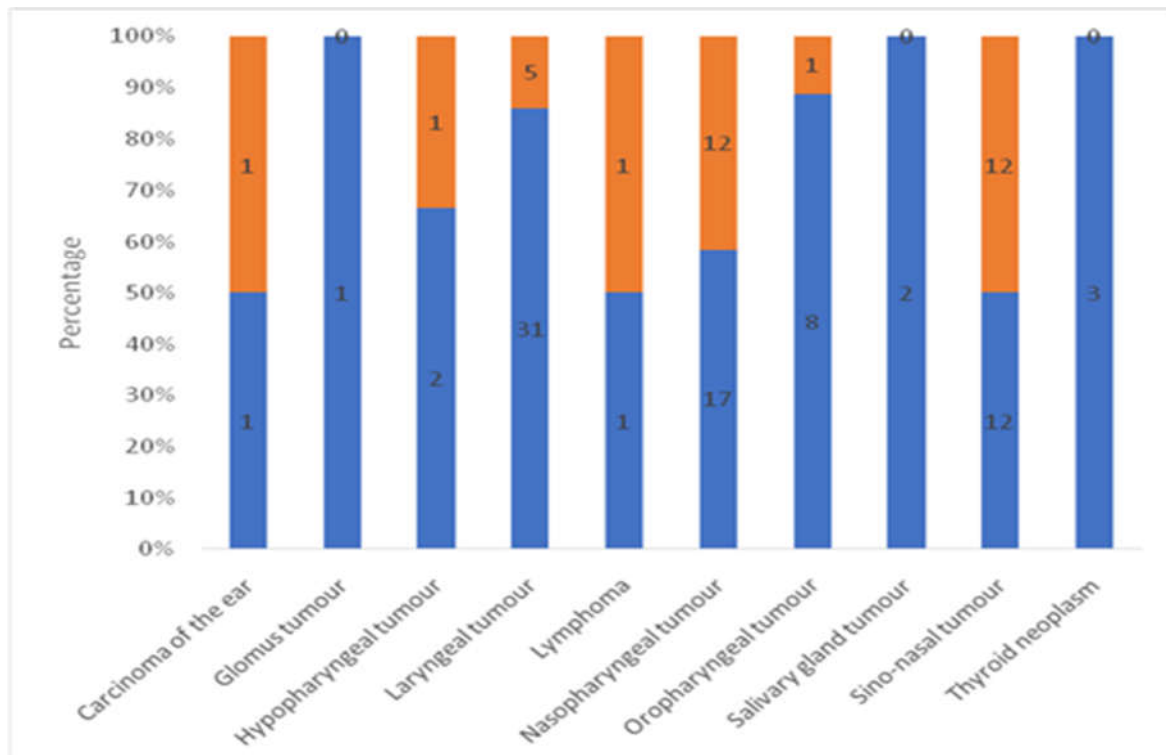


Figure 5: Clinical diagnosis among the patients

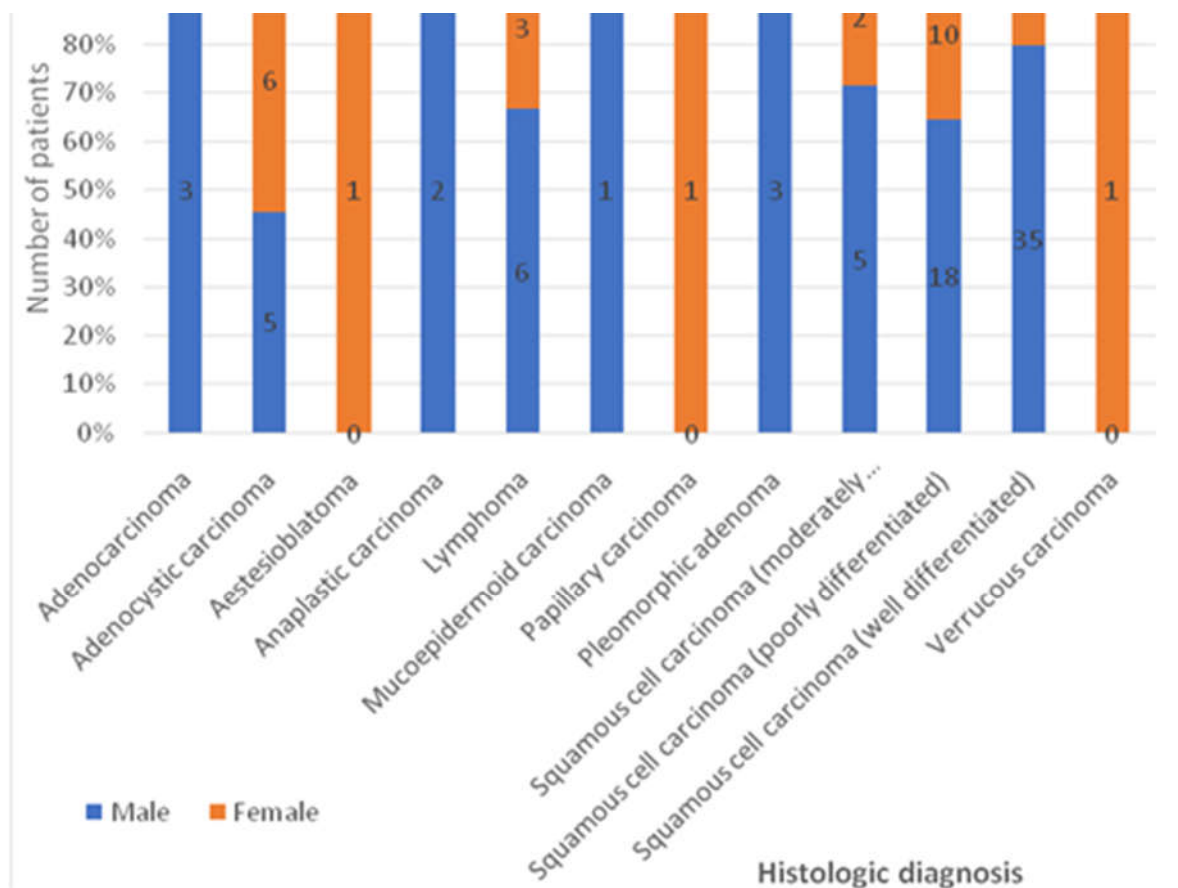


Figure 6: Histological diagnosis among the patients

Table 1: Regression table

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	6.167	1.875		3.290	.001
	Sex of patients	-.602	.505	-.120	-1.193	.236
	Smoking	-1.386	.477	-.287	-2.902	.005
	Retroviral disease	.232	.785	.028	.296	.768

Whereas the peak age of incidence here is lower than what CTCA has in their account, this finding falls within the range reported by Schiff, in 2018. Schiff (2018), in an overview of head and neck tumours documented a peak incidence of HNTs between 50 and 70 years. Earlier studies by Nwokolo et al., 2011 and Adeyi & Olugbenga, 2011 reported a lower age of peak in the incidence of HNTs in Nigeria. Nwokolo et al., (2011) evaluating 308 cases of HNTs over a 10-year period at the Lagos University Teaching Hospital, Lagos, found 45.0% of the patients with HNTs to be in their fourth and fifth decades of life. In the same vein, Adeyi & Olugbenga (2011) in their study of the challenges of managing malignant head and neck tumors in a tropical tertiary health center in Jos, Nigeria, found seventy percent of the patients to be in their fourth and fifth decades of life. It is typical for most tumours to present in later life because some time is required for reversal of the normal cell cycle to cessation of the programmed cell death and uncontrolled cell division. Furthermore, many tumours will be ignored in early life largely due to ignorance, more so, when these lesions are considered to be small and asymptomatic.

This study found more males (78, 70%) involved with the HNTs. Otoh et al., 2004; Nwokolo et al., 2011; Adeyi and Olugbenga, 2011, found similar male predilections in Maiduguri, Lagos and Jos, Nigeria, respectively. Similarly, NyiNyi et al., in 2014, analysed the trends in incidence and age distribution of oral and oropharyngeal cancers in Jamaica and found the male gender predilection. The proportions of the genders are also similar as NyiNyi et al., recorded 72% for males and 28% for females. Another study that found a greater male involvement is that of Nagarkar et al., in 2015, when they did 'need- based epidemiological studies to understand threats from non-communicable

diseases like cancer. Nagarkar and co-workers' finding revealed even a higher proportion of the male gender (82%) than found in this present study. These findings are however not surprising as the male gender has been implicated as a risk factor for tumours (Head and Neck Institute, 2018); the male is likely to indulge in alcohol, smoking or both. Furthermore, the male is more likely to overlook the early warning signs and therefore come down with full blown disease.

Alcohol intake and smoking were the most common identified risk factors to developing HNTs. This finding is in consonance with almost all other researches that evaluated risk factors in cancers. Whereas alcohol, retroviral disease and smoking show association with the HNTs, only smoking appeared to be a predictor of the HNTs (t, -2.902; P=0.005). Association of alcohol with cancers may be attributable to its ability to cause a build-up of acetaldehyde insome individuals causing chromosomal mutations, deletions and DNA clumping which leads to cancers (Garaycoechea et al., 2018). There appear to be a synergistic association between alcohol and smoking as most smokers are also prone to drinking. The authors are of the opinion that ignorance of believing several myths and teaching of trado-medical sayings that alcohol is a good product that heals diseases and causes none may remain a bane of our local communities.

Smoking has been shown to be associated significantly to high cancers in the head and neck regions (Laantri et al., 2010). There are so many ways in which the combination of chemicals in tobacco smoke cause damages in the human body. Chemicals found in cigarettes have been found to damage deoxyribonucleic acid (DNA). Benzo(a)pyrene causes damage specifically at a part of the DNA that normally protects our cells from cancer. Furthermore, the

chemicals in tobacco smoke harm the cleaning system of the body. This impairs the ability of smokers to handle toxic chemicals., leading to a build-up of damage in the cells which over time can lead to cancer (Benjamin, 2010).

Swelling and nasal obstruction contribute most of the clinical features while bleeding from the ear and tinnitus contributed the least (. A possible explanation to these findings can be gotten from the severity of these feature. Whereas one is able to live a near normal life with some degree of swelling and nasal obstruction, bleeding from the ear or a 'buzzing' in the ear are less tolerable features and patients are likely to seek help immediately these features are present.

Figures 5 and 6 show the relative distribution of the clinical and histological diagnoses among the genders. The most common histologic diagnosis was the squamous cell carcinoma accounting for 71.2% of all the cases; with more than half of these described histopathologically, as well differentiated. This finding is similar to what several authorities have noted over the years (Nwawolo et al., 2011; Lin et al., 2011; Lawal et al., 2013; WRF/AICR, 2018). This is probably a function of the predominant epithelial lining in the head and neck region.

CONCLUSION

More than one out of every one hundred patient seen in the ear, nose and throat clinic is diagnosed of tumours. HNTs are therefore common in our environment with increased risk factors such as smoking, alcohol and exposures to hydrocarbons; though with low reportage. The authors are of the opinion that increased national reportage and creating awareness of the risk factors will go a long way to minimize incidence. We therefore suggest equipped regional cancer centers with qualified manpower with a view to reducing the burden of cancers in Nigeria.

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