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PREVALENCE AND MANAGEMENT OF BREAST CANCER IN A NIGERIAN TERTIARY HOSPITAL: A RETROSPECTIVE STUDY

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INTRODUCTION
Schwannomas, also known as neurilemmoma, are the most common peripheral nerve sheath tumors originating from Schwann cells along the course of a nerve.[1] Although it can occur anywhere in the body, it is found less frequently in the lower extremities.[2] Schwannomas most commonly occur in the head and neck involving the brachial plexus and spinal nerves. The lower limbs are affected less often.[3] The diagnosis of a Schwannoma in a lower limb is often delayed for several years because it is frequently misdiagnosed as a benign solitary mass such as a ganglion, fibroma or myxoma.[4.5] This tends to occur in patients aged 30–60 years and has no race or sex predisposition.[6,7,8] The onset of symptoms is usually associated with location rather than the size of the tumor as symptoms of neural compression arise with the growth of the mass.[9]

KEYWORDS: Tumors, posterior tibial nerve, Schwannomas.

INTRODUCTION

Breast cancer is the most frequent cancer among women, affecting 2.1 million women each year, and also causes the greatest number of cancer-related deaths among women. In 2018, it is estimated that 627,000 women died from breast cancer – that is approximately 15% of all cancer deaths among women. While breast cancer rates are higher among women in more developed regions, rates are increasing in nearly every region globally.[1] Although it is the most common cancer in women, it also causes significant morbidity and mortality among men.[2]

Breast cancer in males accounts for less than 1% of breast cancers. In the United States, males are expected to account for only 2670 of the estimated 268,600 cases of breast cancer predicted to occur in 2019. Unfortunately, this rarity has largely precluded prospective randomized clinical trials. It may also contribute to the infrequency of early diagnosis. Men tend to be diagnosed with breast cancer at an older age than women and with a more advanced stage of disease, and they have proportionately higher mortality, although outcomes for male and female patients with breast cancer are similar when survival is adjusted for age at diagnosis and stage of disease.[3]

The American Cancer Society estimated an average of 93,600 new cases of breast cancer annually in Africa with about 50,000 deaths.[4] There has been increase in breast cancer prevalence particularly in Africa due to 'Westernized lifestyle' with a projected doubling of the burden by 2030. The projected increase is because of ageing, population growth, adoption of unhealthy lifestyles and the absence of effective public health policies and interventions against breast cancer, late presentation, advanced stages of disease at diagnosis, poor healthcare infrastructure, lack of adequate funding, non-affordability of the available services by most patients, superstition and low awareness of the disease leaves the average Nigerian patient with poor prognosis and survival.[2]

In Nigeria as in most developing countries, late presentation with unfavorable prognosis is common. Due to limited resources, the burden of management of breast cancer weighs heavily on the patient who is likely to be poor, illiterate and has no form of health insurance. She is therefore forced to seek cheaper alternative treatment and only come to hospital as a last resort and with advanced disease.[3]

In order to improve management outcome, and survival, early detection is extremely important. World Health Organization (WHO) recommends two early detection strategies for breast cancer; early diagnosis and screening. Limited resource settings with weak health systems where the majority of women are diagnosed in late stages should prioritize early diagnosis programs based on awareness of early signs and symptoms and prompt referral to diagnosis and treatment.[1]

There have been some publications on the clinical presentation, diagnosis and risk factors for breast cancer, particularly in western and northern parts of Nigeria.[5,6] Recent publications on breast cancer in the southern part of Nigeria is based on a population based profile, and does not include the management of breast cancer.[7] This study will examine the prevalence of breast cancer in a tertiary hospital in Rivers State for a three year period, the stage of presentation, management, and outcome of management, with the goal of improving early detection and enhancing treatment outcomes.

METHOD

Research Setting

The study was carried out in the University of Port-Harcourt Teaching Hospital, Rivers State. Rivers state is located in South-Southern Nigeria made up of 23 local government areas. Its capital, Port-Harcourt, is the largest city with economic significance as the centre of Nigeria's oil industry.

The hospital was established to serve as a fully functional 800 bedding teaching hospital with state-of-the-art facilities for provision of service, teaching and research to cater for the needs of the local and wider community. The hospital currently has sixteen[16] clinical departments offering services, conducting training and research as well as over 10 support service departments including a diagnostic centre. The Hospital provides various services to the community in the field of health and social services through its clinical and service departments. The hospital is a fee-paying health facility; therefore, people are required to pay for services rendered at designated points. All patients presenting to the hospital are initially handled by the general outpatient department before further referral to their departments as appropriate. It is currently managed using a three-tier managerial system consisting of the Board of Management, Hospital Management Committee (HMC) and the departments.

Study Design

The study adopted a retrospective study in which the case note of all patients with histologically confirmed neoplastic breast diseases seen in the Oncology Unit of the University of Port-Harcourt Teaching Hospital, Rivers State, between January 2018 and December 2020 were retrieved and reviewed. Demographic characteristics, the clinical stage at presentation, management and follow up of patients were studied. The results were analyzed using Statistical Package for Social Science (SPSS) software version 20.

Study Population

A total of 191 case note of patients with histologically confirmed neoplastic breast diseases were retrieved from the records department of the Oncology unit of the University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State.

Data Collection

This study was conducted at the Oncology Unit at the University of Port-Harcourt Teaching Hospital (UPTH). The tool used was a review of hospital records for retrospective evaluation of breast cancer incidence which was achieved by random sampling method at the hospital. Demographic characteristics, the clinical stage at presentation, management (including operative and chemo-radiotherapy) and follow up of patients were studied. A total of 191 confirmed cases of breast cancer were recorded between January 2018 –December 2020, and their case notes were reviewed, and the data collected were arranged in tabular form.

Data extracted from patients' case files include: confirmed presence of the disease; clinical stage at presentation, management procedure, gender, age, age at diagnosis, and mortality

Inclusion Criteria

All patients with histologically confirmed neoplastic breast diseases, that attend clinic in the Oncology Unit of University Teaching Hospital.

Exclusion Criteria

Patients with breast lesions not confirmed histologically and those with histologically non-neoplastic lesions.

Ethical Consideration

Before the study commenced, ethical approval for the study protocol was granted by the Ethical Committee of the University of Port-Harcourt Teaching Hospital, Rivers State.

Limitations of the Study

The system of data storage by the medical records department of the Hospital made differentiating new cases and existing or reccurrent cases tedious. Frequent loss of patients to follow up and insufficient follow up data made survival estimation difficult.

Data Analysis

The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0 and descriptive statistics for the demographic data. Numeric values were placed as mean values ± SD. A value of $p<0.05$ was considered statistically significant.

Staging Characteristics

The TNM staging classification was used and clinical stages were grouped as: early stage (stages 1 and 2A), advanced (2B and 3C) and metastatic (stage 4). Frequencies were presented as absolute values and percentages.

RESULT

A total of 828 patients were encountered at the Oncology department of the University of Port Harcourt Teaching Hospital with various malignant tumor types, out of which 191 patients were seen with malignant breast

disease over the three-year period. Table 1 shows the overall distribution of malignant breast disease for the three-year period on a monthly basis. A total of 47 patients were seen in 2018, 62 patients were encountered in 2019, whereas in 2020, a total of 82 patients were encountered with malignant breast tumor. The prevalence of breast cancer in 2018 was 24.2% and that of 2019 was 26.2 out of every 100 patients. The denominator for calculating the prevalence was the total number of cancer cases observed in the department for each year. The prevalence for 2020 was 20.9 out of 100 patients. The decrease in prevalence rate observed from 2019 to 2020 does not indicate a decline in breast cancer incidence in 2020, but rather reflects the overall increase in cancer cases that was encountered in 2020.

Table 1: **Overall Distribution of Malignant Breast Diseases in UPTH Over a 3 Year Period.**

MONTH	MALIGNANT BREAST DISEASES		
	2018	2019	2020
January	2	0	13
February	3	3	4
March	1	2	7
April	3	3	6
May	5	11	5
June	3	3	7
July	4	10	5
August	6	6	8
September	4	3	4
October	5	6	6
November	10	12	9
December	2	3	8
Total	**47 (24.2%)**	**62 (26.2%)**	**82 (20.9%)**

Calculating Prevalence

Prevalence = $\frac{\text{Number of patients with breast cancer}}{\text{Number of cancer patients}} \times 100$

Overall Distribution of Malignant Breast Diseases in UPTH Over a 3 Year Period= 191

Total number of Cancer Patients encountered in 2018 = 204

Breast Cancer Prevalence in 2018 = $\frac{47 \times 100}{204}$ = **24.2%**

Total number of cancer Patients encountered in 2019= 232

Breast Cancer Prevalence in 2019= $\frac{6\ 2 \times 100}{232}$ = **26.2%**

Total number of Patients encountered in the oncology department of UPTH in 2020= 392

Breast Cancer Prevalence in 2020= $\frac{82 \times 100}{392}$ = **20.9%**

Overall Prevalence= $\frac{191 \times 100}{828}$ = **23.1%**

Table 2: TNM Classification, age and sex distribution of patients seen over a 3 years period.

AGE GROUP (Years)	20-29		30-39		40-49		50-59		60-69		70-79		Total		Grand Total
STAGE	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
IIA	0	2	0	3	0	0	0	0	0	0	0	0	0	5	**5**
IIB	0	3	0	11	0	0	0	0	0	0	0	0	0	14	**14**
IIIA	0	0	0	18	0	3	0	0	0	0	0	0	0	21	**21**
IIIB	0	0	0	28	0	10	0	0	0	3	0	0	0	41	**41**
IIIC	0	0	0	9	0	25	1	14	0	0	0	3	1	51	**51**
IV	0	0	0	12	0	13	1	19	0	8	0	5	1	57	**57**
Total	0	5	0	81	0	51	2	33	0	11	0	8	2	189	**191**
Grand total	**5**		**81**		**51**		**35**		**11**		**8**		**191**		**191**

M= Males, F= Females

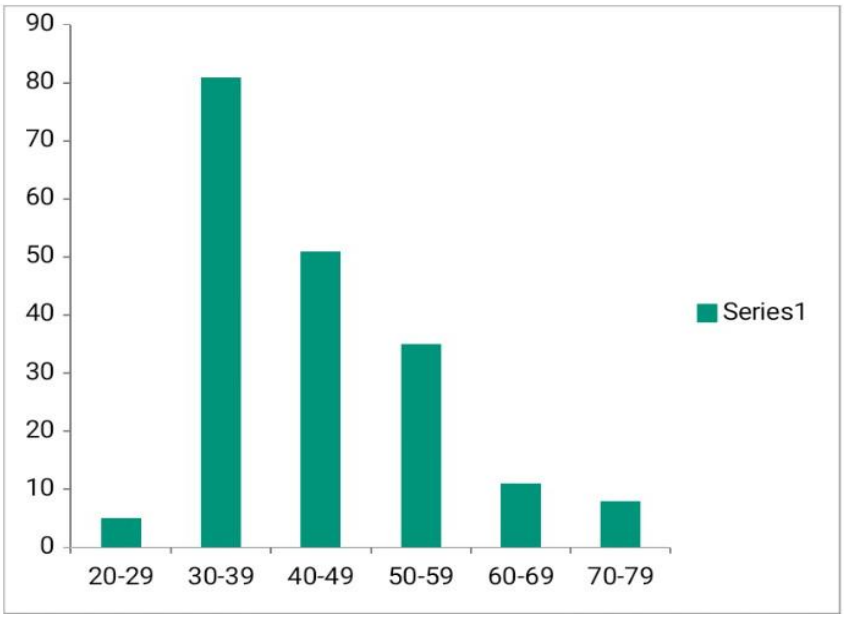

Figure 1: Graphical representation of Age distribution of breast cancer patients over the 3 year period.

Table 3: Sex distribution of patients data collected over the 3-year stud period

YEAR	MALE	FEMALE
2018	0	47
2019	1	61
2020	1	81
Total	**2 (1%)**	**189 (99%)**
Grand Total	**191**	

Table 4: TNM Staging Classification of Patients Extracted over the 3-year study period.

Staging	Frequency	Percentage %
I	0	0
IIA	5	2.6
IIB	14	7.3
IIIA	21	11.0
IIIB	41	21.5
IIIC	52	27.2
IV	58	30.4
Total	191	100.0

TNM Staging, Age and Sex Distribution of Breast Cancer

The result shows that most patients presented with the late disease (stage 3C and tage 4). A progressive increase in the frequency of encounter from stage 2A to stage 4 was observed, with stage 4 (metastatic stage) recording the highest disease presentation with a frequency of 58 (30.4%) (Table 2). Only 5 (2.6%) patients presented with the early stage of the disease (Stage 2A), the rest of the patients presented with the advanced stages of the disease. No patient presented with stage I disease, 52 patients presented with stage 3C (27.2%), 41 patients presented with stage 3B (21.5%), 21 patients presented with stage 3A (11.0%), while 14 (7.3%) patients presented with stage 2B disease (Table 4). The study shows that the disease occurs most in younger women (30-39; 42.4% and 40-49; 26.7%). A decline in frequency is observed as the age increases. Older patients are seen to present with a more advanced stage of the disease (Figure 1).

The disease is more predominant in females. Only 2 (1%) cases were recorded in males out of 191 patients encountered in the three-year period, giving a male:female ratio of 1:96 patients with breast cancer (Table 3). The male patients presented with an advanced stage of the disease. This can be attributed to poor awareness of the disease amongst males. Patients who presented with the early stage of the disease were offered lumpectomy. Patients with the advanced stage of the disease recieved neo-adjuvant chemotherapy to down regulate the tumor. Simple mastectomy was offered to 5.7% of the patients, while 81.9% recieved modified radical mastectomy. All patients recieved adjuvant chemotherapy using cyclophosphamide, gemcitabine, adriamycin, docetaxel, ondasetron, paclitaxel usually in combinations, but compliance was poor due to financial constraints. Hormone therapy with tamoxifen was offered to 57% of the patients who tested positive to either estrogen or progesterone. All patients operated were refferred for adjuvant radiotherapy, however 18% of the patients recieved adjuvant radiotherapy, with 87% recurrence. Most patients did not receive adjuvant radiotherapy due to financial constraints. 5 patients died pre-operatively from the metastatic disease, while 3 patients died post operatively from overwhelming tumor burden. The mortality rate therefore was 4.2% (Table 5)

Table 5: Mortality pattern of breast cancer patients.

S/N	Stage of Mortality	Frequency (%)
1	Pre-operative	5 (2.6%)
2	Post-operative	3 (1.6%)
Total		**8 (4.2%)**

DISCUSSION

The study shows that breast cancer accounted for 23.1% of all cancer cases encountered at the University of Port Harcourt Teaching Hospital within the three-year period of the study (2018, 2019 and 2020). The number of cases rose from 47 (24.4%) in 2018, to 62 (26.2%) in 2019, and finally 82 in 2020 (20.9%), despite the lock down encountered in the early parts of 2020. This can be ascribed to an increased awareness of the disease brought about by a cancer awareness program organized by members of the oncology department of the hospital in October of 2019, which happens to be the cancer awareness month. This shows that prioritizing public health awareness programs for breast cancer will raise public concern and enhance early screening and detection. Recent studies conducted on the incidence of breast cancer in Nigeria suggest a rising incidence of breast cancer attributed to westernized lifestyle and better reporting of the disease.[8]

The most common palliative treatment offered to patients was surgery; this was often followed by neo-adjuvant chemotherapy and radiotherapy; however, compliance was poor due to financial constraints. Compliance to surgery also posed a challenge, inasmuch as some patients declined mastectomy due to religious, social, and cultural conception. A record setting number of patients who received surgery were unable to afford radiotherapy, and only 18% received Neo-adjuvant radiotherapy. Follow up details reveal 87% recurrence, with a mortality rate of 4.2% within the three-year period. However, some patients were lost to follow up or unable to continue with treatment due to mounting financial expenses. The burden of treatment lies heavily on the patient who is likely to be poor, illiterate and has no form of health insurance. The financial burden can be relieved through government intervention to reduce cost of treatment and drugs through tax exemption and subsidy, and the inclusion of breast cancer screening and treatment in the National Health Insurance Scheme. Non-governmental Organizations and government organizations can also fund breast cancer screening and treatment to improve outcome and increase life expectancy of patients.

Breast cancer prevalence is predominant in females. The study demonstrates a male:female ratio of 1:96. Only two males were encountered with the disease in the three-year period. The misconception that breast cancer only occurs in females has contributed to depressed awareness of the disease in males, hence breast cancer is diagnosed at an advanced stage in men, often at an older age; with poor prognosis. Breast cancer in men is attributed to mutations in the BRCA1 and BRCA2 genes. Other risk factors include exposure to estrogen, family history of breast cancer, prostate cancer and obesity. Public health awareness programs should take into cognizance the incidence of breast cancer in males, and prioritize early screening and detection particularly in high risk males. This is to ascertain that the disease is diagnosed at an early stage in males and improve treatment outcomes.

The study demonstrates that breast cancer incidence in women is much higher at a younger age.[30-49] The result is consistent with studies carried out in other parts of Nigeria and Africa which demonstrated that the overall mean age of presentation in West African women is between 35 and 45 years, this is 10 to 15 years earlier than in women from high-income countries.[9]

The majority of patients present with advanced stage of breast cancer, with the metastatic stage (stage IV) having the highest frequency. Results from this study are comparable with studies conducted in other parts of the country like Sokoto[6] in, Nigeria which reported that 359 (44.0%) patients presented with stage 4 (T4C, N3, M1) disease. Only 5 (0.6%) patients presented with stage 2 (T3A, N1B, M0) disease. No patient was seen with stage 1 disease. Sharma *et al*; (2012)[10] concluded in their study that poverty and lower education level were the chief reasons for delays in presentation. In addition, diagnostic process in the University of Port Harcourt Teaching Hospital is slow owing to poor infrastructure and facilities, and diagnostic results are delayed giving room for the cancer to aggressively progress to an advanced stage. Other reasons for late progression include ignorance, fear of diagnosis, religious bias, denial, illiteracy, poverty which propels patients to seek cheaper alternative treatments like herbal, traditional or faith healing.

CONCLUSION

The prevalence rate of breast cancer in the UPTH is 23.1 per 100 cancer patients. Surgery followed by neo-adjuvant chemotherapy and radiotherapy is the primary management option. However, patient adherence is poor due to financial constraints. Management outcome is poor due to late stage presentation. Patients are diagnosed at a younger age and accounts for significant mortality.

Recommendation

In a bid to ameliorate early stage detection of breast cancer and improve treatment outcome, and overall life expectancy of patients; priority should be placed on breast cancer awareness and public sensitization programs. Dedicated breast cancer screening and detection centers should be set up across the state, with improved facilities and infrastructure. Adequate funding of diagnosis and treatment centers to facilitate early detection. Government intervention to reduce cost of treatment and drugs through tax exemption and subsidy, and the inclusion of breast cancer screening and treatment in the National Health Insurance Scheme to reduce the financial burden on patients. Non-governmental Organizations and government organizations can also fund breast cancer screening and treatment.

Conflict of interest

The authors declare No Conflict of interest to this work

REFERENCES

1. WHO Breast cancer: Prevention, diagnosis and screening of breast cancer, 2019.
2. Obiorah CC, Abu EK. Breast cancer in Rivers State, Nigeria: Ten-year review of the *Port Harcourt cancer registr*y. S. Afr. J. oncol, 2019; 3(0): a58. https://doi.org/10.4102/sajo.v3i0.58&#0; accessed 3,9,20
3. Bagi RP Jana, MD; (2019) *B*reast cancer overview in men: overview of male breast cancer. Emedicine: Medscape.
4. Amin SM, Ewunonu HA, Oguntebi SE, Liman IM. *Breast cancer mortality in a resource-poor country: A 10-year experience in a tertiary institution*, 2017; 20(3): 93-97.
5. Ayoade BA, Adedayo OT, Babatunde AS. Clinical Features and Pattern of Presentation of Breast Diseases in Surgical Outpatient Clinic of a Suburban Tertiary Hospital in South-West Nigeria. Nigerian Journal of Surgery, Jan-Jun, 2012; 18(1): 13–1.
6. Agbo PS, Khalid A, Oboirien M. *Clinical Presentation, Prevalence and Management of Breast Cancer in Sokoto, Nigeria*. J Women's Health Care, 2014; 3: 149. doi:10.4172/2167-0420.1000149&#0;
7. Ngwogu, K.O, Offiah, SAU, Ngwogu, AC, Ndubuka, GIN, Ekperi, O. Prevalence and histopathological pattern of breast cancer among patients at Abia state University Teaching Hospital, Aba, South Eastern Nigeria
8. Anyawu SN. Breast Cancer in eastern Nigeria: a ten year review. West Afr J Med., 2000; 19: 120-125.
9. Vanderpuye V, Grover S, Hammad N, PoojaPrabhakar, H, Simonds, FO, Stefan DC. An update on the management of breast cancer in Africa. Infectious Agents and Cancer, 2017; 12: 13. OI 10.1186/s13027-017-0124-y.
10. Sharma K, Costas A, Shulman LN, Meara JG. A systematic review of barriers to breast cancer care in developing countries resulting in delayed patient presentation. J Oncol, 2012; 121873.