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RESEARCH ARTICLE

BREAST CANCER BURDEN IN BAYELSA STATE, NIGERIA: A HISTOPATHOLOGICAL PROFILE

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ABSTRACT

Introduction: Breast carcinoma is the most common malignancy in females and ranks amongst the leading causes of cancer deaths in females in Nigeria and worldwide.
Aim: To analyze the breast cancers in Bayelsa state histopathologically, providing baseline data for management, education and awareness.
Methods: A retrospective descriptive histopathological multicentre study of malignant breast diseases in the three histopathology enabled centres in Bayelsa state from January 2009 to December 2013.
Results: A total of 106 (31.7%) malignant breast diseases were seen during the study period. All the malignant breast lesions occurred in females. The age range was 25-58 years with a mean age of 46.8years. The peak age incidence was in the 4th decade (32.1%) and 69.8% of the breast cancers occurred in premenopausal women. Invasive ductal carcinoma not otherwise specified (78.3%) was the most common. Majority was high grade cancers (46.6%) and most occurred in the left breast (53.6%).
Conclusion: Breast cancers were predominantly invasive ductal carcinoma of high grade mainly in premenopausal women. The presence of high grade tumours with poor prognosis at young ages call for more rigorous approaches to management including early and targeted screening, better education, increased public awareness and subsidization of treatment cost.

INTRODUCTION

Breast cancer is among the most common neoplasms in humans and constitutes about a quarter of all cancers in females (**Tavassoli and Devilee, 2003**). Carcinoma of the breast has been documented as the most common malignancy of the females, and ranks among the common causes of cancer deaths in women, worldwide (**Dumitrescu and Cotarta, 2005; Saxena *et al*., 2005; Chandra, 1979**). It has been reported by some authors as the leading cancer among the female population in Nigeria (**Adebamowo and Ajayi, 2000; Malami *et al*., 2007; Adesunkanmi *et al*., 2006**). It has been observed that in Ibadan, Nigeria, there has been a two-fold rise in the incidence of breast cancer (**Parkin *et al*., 2003**). There are challenges to breast cancer management in our locale due to late presentation, young age at presentation, poverty, inadequate diagnostic and therapeutic facilities and the fear of death or deformity resulting from treatment of this awful disease. This study is the first histopathological audit of all the breast cancers seen in all the histopathology enabled centres in Bayelsa state and therefore aims at providing a reliable and comprehensive baseline data on the histopathological pattern and grades of breast cancer for the purposes of management, prognostication and to highlight the peculiarities of the disease in our environment for public awareness and education.

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MATERIALS AND METHODS

A retrospective descriptive study based on the malignant breast lesions seen in all the three centres in Bayelsa state offering histopathology services including Niger Delta University Teaching Hospital, Okolobiri, Federal Medical Centre, Yenagoa and a Private Histopathology Centre in Yenagoa from January 2009 – December 2013. The original request forms and the duplicate histopathological reports on all the malignant breast specimens received in the three centres within the study period were retrieved from the archives. The archived slides for all the malignant breast lesions were also retrieved and reviewed. Information on the age, sex, nature of specimen, side affected, laboratory numbers and histopathological diagnosis were extracted from the request forms and histopathological reports. Where needed, new slides were made from formalin-

fixed, paraffin-embedded tissue blocks and stained with Haematoxylin and Eosin (H&E) for review. Cases of breast cancer with incomplete demographic data or tissue diagnosis were excluded from the study. The obtained results were analyzed using simple descriptive statistical methods.

RESULTS

There were 106 malignant breast diseases out of a total of 334 histopathologically diagnosed breast lesions. All the malignant breast lesions were seen in females. The age range was 25-85years with a mean age of 46.8years. The peak age incidence was in the 4th decade (32.1%) (Table 1). Of the total malignant breast diseases, 69.8% were seen in patients below 50years of age while 30.2% occurred in patients above 50years. The most common histologic type of breast cancer encountered in this study was Invasive ductal carcinoma, not otherwise specified (IDC, nos) 83 (78.3%). Mucinous carcinoma constituted 11 (10.4%) and Invasive lobular carcinoma 4 (3.9%). Other uncommon cases are depicted in Table 2. A total of 103 invasive breast cancers were graded; 48 (46.6%) were grade 3 (high), 31 (30.1%) were grade 2 (intermediate) and 24 (23.3%) were grade 1 (low). Breast cancers occurred in 53.6% patients on the left side and on the right side in 45.5%. Bilateral breast cancer was observed only in 0.9% of cases.

Table 1. Age Frequency Distribution

Age Range	Frequency	%
11 – 20	0	-
21 – 30	9	8.5
31 – 40	34	32.1
41 – 50	31	29.2
51 – 60	16	15.1
61 – 70	12	11.3
71 – 80	2	1.9
81 – 90	2	1.9
Total	106	100

Table 2. Frequency Distribution of Histological Types

Type	Frequency	%
Ductal carcinoma insitu	3	2.8
Lobular carcinoma insitu	0	0
Invasive ductal carcinoma	83	78.3
Invasive lobular carcinoma	4	3.9
Mucinous carcinoma	11	10.4
Papillary carcinoma	3	2.8
Medullary carcinoma	1	0.9
Malignant Phylloides	1	0.9
Total	106	100

Table 3. Distribution of the Breast Carcinomas (Based on Nottingham histologic score)

Grades	Frequency	Percentage
1	24	23.3%
2	31	30.1%
3	48	46.6%
	103	100%

DISCUSSION

Our study revealed that breast cancer in Bayelsa state occurs most commonly in the 4th and 5th decades and showed a mean age at occurrence of 46.8years with 69.8% of the cases being seen in women below 50years. These findings are similar to those of other studies in Nigeria: Calabar; peak 30-39 years, mean age 45.06years (**Ebughe *et al*., 2013**), Lagos; peak 30-39years, mean age 48.7years (**Papoola *et al*., 2012**), Warri; peak 4th and 5th decade, mean age 46years (**Forae *et al*., 2014**), Ife; peak 40-49years, mean age 48years (**Titiloye *et al*., 2013**), Owerri; peak 41-50years, mean age 43years (**Anele *et al*., 2009**) and Zaria; peak 4th and 5th decade, mean age 44.5years (**Kene *et al*., 2010**). That majority of these breast cancers occurred in patients below 50years is quite in conformity with most local studies however this contrasts the reports of studies in Caucasians from Maryland United States (**Anderson *et al*., 2006**) 62years mean age for breast cancer and in Europe (**Bowen *et al*., 2008**) 7th decade for peak incidence for breast cancer. The reason for this variance is uncertain. It has been well stated that high parity and lower age at first birth are protective factors against breast cancer (**Russo *et al*., 2005; Huo *et al*., 2008**). It is possible that the comparatively low life expectancy of Nigerian women (**National population commission, 2006**), the changing reproductive pattern (i.e. reducing parity in Nigerian women), increased age at first birth (from economic pressures and increased schooling age) with westernization of lifestyles including dietary habits (**Bray *et al*., 2004**) could partly explain this variation.

Generally male breast cancer is a rare entity and constitutes less than 1% of all breast cancers (**Tavassoli and Devilee, 2003**). However, no case of male breast cancer was encountered in our study. Similarly in Warri (**Forae *et al*., 2014**), only one case out of 261 breast cancers occurred in the male. In Owerri, South Eastern Nigeria, male breast cancer constituted as much as 6% of the total breast cancers seen (**Anele *et al*., 2009**). Also in Zaria, North Western Nigeria, male breast cancer formed 3.9% of the total breast cancers (**Kene *et al*., 2010**) while independent studies from Maiduguri, North Eastern Nigeria documented 3.7% (**Dogo *et al*., 2006**) and 5% (**Nggada *et al*., 2008**) respectively. This suggests that breast cancer is extremely rare among males in Bayelsa state. The reason for this is uncertain.

The index study shows that IDC (nos) is the most common histopathological type (78.3%) and this is in keeping with other local and international studies (**Ebughe *et al*., 2013; Popoola *et al*., 2012; Titiloye *et al*., 2013; Kene *et al*., 2010; Anderson *et al*., 2006; Nggada *et al*., 2008; Ekanem and Aligbe, 2006; Gogo-Abite and Nwosu, 2005; Clegg-Lamptey and Hodasi, 2007; Kwong *et al*., 2011**). The second most common invasive breast cancer in our study was Mucinous carcinoma (10.4%). This is at variance with most other local studies which listed invasive lobular carcinoma (ILC) as their second (**Papoola *et al*., 2012; Forae *et al*., 2014; Titiloye *et al*., 2013; Nggada *et al*., 2008; Ugiagbe *et al*., 2011; Dauda *et al*., 2011**).

ILC with adjustment for grade and stage has same prognosis as IDC (nos) while the overall prognosis for mucinous carcinoma is slightly better compared to that of IDC (nos) (**Lester, 2010**). Majority of the invasive breast cancers seen in our study were of grade 3 (46.6%), a finding in tandem with those of other local reports. Also the cancers in this study (53.6%) occurred largely at the left breast. Similar predominant occurrence of breast cancers on the left side has been documented by other studies in Nigeria (**Forae *et al*., 2014; Kene *et al*., 2010; Ekanem and Aligbe, 2006**). The reason for this anatomic preference is not well elucidated.

Conclusion

Breast carcinoma occurred predominantly in premenopausal women in our locale with invasive ductal carcinoma; not otherwise specified and high grade tumours constituting the majority while male breast cancer here is extremely rare. The presence of high grade tumours with poor prognosis at early ages, together with poverty, limited education, reduced access to interventional treatment modalities and late presentation call for more rigorous approaches to breast cancer management including early and targeted screening, better education, increase public awareness and subsidization of breast cancer treatment by government and non-governmental organizations.

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