

ORIGINAL ARTICLE

HISTOPATHOLOGICAL PATTERN OF BREAST CARCINOMA IN DIFFERENT AGE GROUPS

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ABSTRACT

Background: Breast cancers tend to be more aggressive in younger patients and some histopathological types like medullary, mucinous and tubular variants have a better prognosis. This study describes the histopathologic pattern and tumour grade of breast carcinoma in younger patients.

Methods: This was a retrospective analysis of all consecutive breast cancer specimens submitted to the histopathology department of Federal Medical Centre Gombe during the study period. The data was analyzed with EPI Info 2002 using simple means and percentages.

Results: A total of 167 cases of breast carcinoma in 164 females were reviewed with three patients having bilateral disease. The age range of the study population was 22-75 years with a mean age of 44 +/-11.7 years. One hundred and twenty seven patients (76%) were aged less than 50 years while the rest were above 50 years. A total of 133 tumours were invasive ductal carcinomas, 107(80.45%) of which were in the premenopausal age group and 26(19.55%) in post menopausal age. One hundred and six patients (63.5%) had low grade tumours (grades 1 and 2) while 61(36.5%) had high grade tumours (Grades III and IV tumours). Forty three (70.5%) of these high grade tumours were seen in premenopausal age group. Eleven patients had invasive lobular carcinoma of which 4(36.4%) were premenopausal while 7(63.6%) were post menopausal.

Conclusion: It is concluded that younger patients tended to frequently have aggressive and high grade disease.

INTRODUCTION

Breast carcinoma is undoubtedly a devastating disease among women with a high mortality rate in both developed and developing nations.¹⁻³ Recent studies have shown that breast carcinoma is a spectrum of diseases with an indolent slowly growing tumour on one end of the spectrum and an aggressive devastating disease at the other.^{2, 4} The incidence of breast cancer is also known to increase steadily with age up to the menopause with a sharp decline afterwards.⁵⁻⁷ This variability in biological behavior has prompted researchers worldwide to look for prognostic markers for breast carcinoma. Notable prognostic indices include axillary lymph node status, stage of disease, hormone receptor status, nuclear grade, and the histopathologic type of the tumour amongst other variables.⁸⁻¹⁰

It is known that breast cancers tend to be more aggressive in younger patients and that some histopathological types like medullary, mucinous and tubular variants have a better prognosis than others.^{1,11} This study aims at determining the relationship between age, histopathologic type and tumour grade hoping

To explain the observed aggressive behavior of breast carcinoma in younger patients.

METHODS

We carried out a retrospective analysis of all consecutive breast cancer specimen submitted to the histopathology department of Federal Medical Centre Gombe which renders histopathology services to four states in the North Eastern region of Nigeria. All records of patients with the diagnosis of breast cancer were retrieved from the pathology registers and request forms. Information including age, sex and laterality were collected from the request forms. The study period covered January 2000 to December 2007. Cases with incomplete data entries were excluded. Breast cancers were typed using the recent histopathological coding of breast tumour according to World Health Organization (WHO)/International Classification of Diseases for Oncology (ICD-O).¹² The data was analyzed using simple means and percentages with EPI Info 2002.

RESULTS

A total of 167 cases of breast carcinoma in 164 females were reviewed with three patients having bilateral disease.

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The age range of the study population was 22-75 years with a mean age of 44 +/-11.7 years.

One hundred and twenty seven patients (76.0%) were aged less than 50 years while the rest were above 50 years. A total of 133 tumours were invasive ductal carcinomas out of which 107(80.45%) were in the premenopausal age group (<50 years) while 26(19.55%) were post menopausal. Majority of the tumours 106 (63.5%) were low grade (grades 1 and 2) while 61(36.5%) were high grade (Grades III and IV tumours). Forty three (70.5%) of these high grade tumours were seen in patients less than fifty years of age. Eleven (6.6%) tumours were invasive lobular carcinoma out of which 4(36.36%) were seen in premenopausal patients, while 7(63.63%) were in post menopausal patients (Table1). Twenty two tumours (13.2%) occurred in patients aged less than 30 years. Ten tumours were grade 1 with 6 of them in premenopausal patients while 7 tumours were grade 4 with 5 of them in premenopausal patients. Majority of the tumours 92(55.1%) were grade 2 (Table2)

DISCUSSION

This study shows that invasive ductal carcinoma was the most common histopathological type of breast carcinoma in pre menopausal patients accounting for 107(64.1%) of cancers. Invasive ductal carcinoma is known to be aggressive and the high incidence in these young patients may explain the clinical pattern seen in clinical practice. This pattern was also reported by Anderson *et al.*¹³ Invasive lobular carcinoma, though rare in this study, were found mainly in post menopausal patients consistent with what is generally known about this disease.^{8,9}

This study shows a steady rise in invasive ductal carcinoma rates from age 20 to 50 and a slower rate of increase afterwards. This pattern was also reported by Anderson *et al* and may suggest differences in the aetiology of the disease at different ages.¹³ About 13% of our patients were less than 30 years of age; this is significantly higher than the 2 % quoted for this age group by other workers and is a common occurrence in African patients.^{4,5,14} There was no case of in situ carcinoma in this series and

Table 1: Histopathological distribution of tumor by age group

AGE GROUP (YEARS)	IDC No	ILC No	ANAP No	MED No	MUC	PAP	TOTAL
20 30	19	0	0	2	0	1	22
31 40	51	2	3	0	0	1	57
41 50	37	2	1	2	2	3	47
51 60	18	2	2	2	1	2	27
61 70	7	5	0	0	1	0	13
71 80	1	0	0	0	0	0	1
TOTAL	133	11	6	6	4	7	167

IDC=Invasive Ductal Carcinoma, ILC= Invasive Lobular Carcinoma, ANAP= Anaplastic Carcinoma, MED=Medullary Carcinoma, MUC=Mucinous Carcinoma, PAP=Papillary Carcinoma

Table 2: Tumor distribution by grade

Tumor grade	Age <50years	Age >50years	Total
Grade 1	6	5	11
Grade 2	78	17	95
Grade 3	34	15	49
Grade 4	9	3	12
Total	127	40	167

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this is generally true for most breast cancer studies emanating from Nigeria.

This may be attributable to paucity of dedicated screening programs for breast carcinoma coupled with a poor health seeking behaviour. Majority of our patients (63.5%) had low grade tumours (grades 1 and 2) while (36.5%) were high grade tumours (Grades III and IV tumours). In a study comparing tumour grade between Nigerian and Finnish breast cancer sufferers, Ikpatt et al reported 45.1% of their Nigerian subjects had high grade tumour while the Finnish counterparts had 15.8% high grade tumours.¹⁵ We however observed that a higher proportion of these high grade tumours (70.5%) were seen in patients less than fifty years of age. It can be concluded that younger patients tended to have more aggressive breast tumours typified by invasive ductal carcinoma, as well as higher grade tumours.

REFERENCES

1. Anderson WF, Chu KC, Chang S, Sherman ME. Comparison of age-specific incidence rate patterns for different histopathologic types of breast carcinoma. *Cancer Epidemiol Biomarkers Prev.* 2004; 13(7): 1128-35.
2. Carolin KA, Tekyi-Mensah S, Pass HA. Lobular carcinoma in situ and invasive cancer: the contralateral breast controversy. *Breast J.* 2000; 8(5): 263-8.
3. Hoogerbrugge N, Bult P, de Widt-Levert LM, Beex LV, Kiemeneij LA, Ligtenberg MJ, et al. High prevalence of premalignant lesions in prophylactically removed breasts from women at hereditary risk for breast cancer. *J Clin Oncol.* 2003; 21(1): 41-5.
4. Bjerregaard B, Kung'u A. Breast cancer in Kenya: a histopathologic and epidemiologic study. *East Afr Med J.* 1992; 69(1): 22-6.
5. Mersin H, Yildirim E, Gulben K, Berberoglu U. Is invasive lobular carcinoma different from invasive ductal carcinoma? *Eur J Surg Oncol.* 2003; 29(4): 390-5.
6. Sacks M, Selzer G. Breast cancer in Israel. Histopathologic types in the different population groups. *Isr J Med Sci.* 1981; 17(9-10): 882-7.
7. McCarty KS, Jr., Kesterson GH, Wilkinson WE, Georgiade N. Histopathologic study of subcutaneous mastectomy specimens from patients with carcinoma of the contralateral breast. *Surg Gynecol Obstet.* 1978; 147(5): 682-8.
8. Phillips LS, Millikan RC, Schroeder JC, Barnholtz-Sloan JS, Levine BJ. Reproductive and hormonal risk factors for ductal carcinoma in situ of the breast. *Cancer Epidemiol Biomarkers Prev.* 2009; 18(5): 1507-14.
9. Gonzalez-Angulo AM, Sahin A, Krishnamurthy S, Yang Y, Kau SW, Hortobagyi GN, et al. Biologic markers in axillary node-negative breast cancer: differential expression in invasive ductal carcinoma versus invasive lobular carcinoma. *Clin Breast Cancer.* 2006; 7(5): 396-400.
10. Stauch G, Szulfer CC, Hilfrich J, Georgii A. [The prognostic value of lymphangiosis carcinomatosa and malignancy grading in T1/T2-N0 cancers of the breast using 10 or fewer examined axillary lymph nodes]. *Geburtshilfe Frauenheilkd.* 1989; 49(3): 283-8.
11. Anderson WF, Devesa SS. In situ male breast carcinoma in the Surveillance, Epidemiology, and End Results database of the National Cancer Institute. *Cancer.* 2005; 104(8): 1733-41.
12. World Health Organisation: International Classification of Diseases 10th edition. Geneva; 1998.
13. Anderson WF, Pfeiffer RM, Dores GM, Sherman ME. Comparison of age distribution patterns for different histopathologic types of breast carcinoma. *Cancer Epidemiol Biomarkers Prev.* 2006; 15(10): 1899-905.
14. Iraniha S, Khalkhali II, Cutrone JA, Diggles L, Klein SR. Breast Cancer Imaging: Can Tc-99m Sestamibi Scintimammography Fit In? *Medscape Womens Health.* 1997; 2(4) :2.
15. Ikpatt OF, Kronqvist P, Kuopio T, Ndoma-Egba R, Collan Y. Histopathology of breast cancer in different populations: comparative analysis for Finland and Africa. *Electronic Journal of Pathology and Histology Volume 8.4, 2002: 024-01.*