

RESEARCH ARTICLE

Clinicopathologic Characteristics of Breast Cancer in Jamaica

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Abstract

Breast cancer is the most common cancer in Jamaican women. This study assessed the clinicopathologic features of cases in a hospital-based specialist clinic in Kingston, Jamaica. A retrospective chart review was performed for the 2-year study period and relevant clinical and surgico-pathologic data were recorded and analyzed. Median age of the 121 breast cancer patients was 52 years (range 22-84, IQR 20) and there was 1 case of male breast cancer. Most patients (65%) were referred from the surgical service after definitive breast cancer surgery, 20% were referred for pre-operative systemic therapy, and 15% had a diagnosis of metastatic disease. The surgico-pathologic group comprised 78 women who were referred for adjuvant therapy. The majority had presented with a palpable breast lump (91%), with median tumour size 3.5cm (range 0.4-13, IQR 4). Most tumours were node positive (56%). Approximately one-third of patients had stage III disease (33%). Most women presented with large palpable tumours and had lymph node involvement confirmed on surgicopathological evaluation, indicative of limited early breast cancer detection. A national screening mammography programme is recommended for detection of earlier lesions. Pre-operative systemic therapy should be considered as an option for eligible patients.

Keywords: Breast cancer - clinicopathologic characteristics - screening - Jamaica

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Introduction

Breast cancer is the most common cancer diagnosed in Jamaican women, accounting for almost one-third of all cancers. The most recent publication of the Jamaica Cancer Registry reported a breast cancer age-standardized incidence rate (ASIR) of 43.1 per 100 000 (Gibson et al., 2010). The overall survival for breast cancer varies worldwide, with developing countries having a lower survival (57%) than developed countries (73%) (Parkin et al., 2005). Breast cancer survival worsens with more advanced stage at presentation; survival for Stage I tumours has been reported to be as high as 97-100%, while that of Stage III cancer ranges from 55 to 71% (Sant et al., 2004). In Jamaica, the survival for Stage I breast cancer has been reported to be as low as 67% (Walters, 1994).

It has been our clinical experience that a significant proportion of women with breast cancer present with large primary tumours with extensive nodal involvement, without distant metastases (locally advanced disease). There is no published data on the stages of presentation of breast cancer in Jamaican women. In this retrospective study, we assessed the clinical and surgico-pathologic features of breast cancer in patients attending the Haematology/Oncology clinic at the University Hospital of the West Indies (UHWI), a tertiary care hospital in Kingston, Jamaica, during a 2-year period.

Materials and Methods

After approval from the UHWI/UWI/Faculty of Medical Sciences Ethics Committee, a list of all new-patient consultations booked for the Haematology/Oncology Clinic for the 2-year period 2006 to 2007 was obtained from the Medical Records Department, UHWI. Retrievalable medical charts were reviewed to identify patients with a diagnosis of breast cancer. Data extraction was performed using a standardized data extraction template to record patient demographics (sex, date of birth, parish of residence) and reason for referral. For patients who had undergone surgico-pathologic staging, we recorded further clinical details and reviewed histopathology reports to ascertain tumour pathology (including pT and pN) and receptor status (oestrogen [ER] and Her-2 receptor [Her]). Progesterone receptor (PR) testing was not available locally during the study period. Disease stage at diagnosis was defined according to TNM characteristics (Edge and Compton, 2010). Details of treatment recommendations were recorded. Based on the descriptive nature of the study, univariate analyses with descriptive summary statistics are presented. The clinicopathologic profile included variables such as age, clinical presentation, TNM stage and ER/HER status. Statistical tests were performed with Statistical Package for Social Sciences® v 12.0.

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Results

Six hundred and twenty-six patients were referred to the specialist clinic during the 2-year study period. We were able to retrieve medical records for 395 of these patients; of these 171 were cases of cancer. Breast cancer was the most common cancer diagnosis (121 cases), accounting for 70% of cancers seen in the clinic. The median age of breast cancer diagnosis was 52 years (range 22-84, IQR 20); there was one case of male breast cancer (Table 1). Most patients resided in Kingston and St. Andrew (57%). The majority (65%) were referred from the surgical service after definitive breast cancer surgery and as such had surgico-pathologic details available. Twenty percent were referred for pre-operative systemic therapy, and 15% had a diagnosis of metastatic disease.

Of the 78 women who had undergone breast cancer surgery, the reasons for suspecting the diagnosis were a self or physician-detected abnormality for most (91%) and suspicious findings on screening mammogram for 7 women (9%). The most common clinical finding was a breast lump (93%), with a few women reporting changes in the skin of the breast (4%) and nipple discharge (3%). Most women (77%) who had surgery had undergone modified radical mastectomy (58 of 75) and 17 (23%) had breast-conserving surgery (BCS), all with standard axillary lymph node dissection. Histopathologic details are summarized in Table 2. Invasive ductal carcinoma was the most common histologic diagnosis (72%). The median tumour size was 3.5cm (range 0.4-13 cm, IQR 4) and the median number of nodes examined was 11 (range 2-20, IQR 5); 56% of tumours were node positive. Most breast cancers were positive for ER (62%), while 20% were Her2 positive. One-third had ER/Her2 negative breast cancer. The proportion of patients with Stage I, II and III disease was 11%, 57% and 33% respectively. The initial systemic treatment recommendations for patients who presented for post-operative management were: chemotherapy (87%), up-front endocrine therapy (9%) and no therapy (4%). Chemotherapy was anthracycline-based (AC/FAC) in all patients, with the addition of a taxane to the anthracycline backbone in 50%.

Table 1. Characteristics of Patients with Breast Cancer seen at the Oncology/Haematology Clinic at the UHWI Over the 2-year Study Period

Characteristic (n=121)	Result
Sex, No. (%) Female	120 (99.2)
Median Age, years (range)[IQR=20]	52 (22-84)
Parish of residence, No. (%)	
KSA	69 (57)
St. Thomas	3 (2.5)
Portland	3 (2.5)
St. Mary	4 (3.3)
St. Ann	3 (2.5)
Manchester	1 (0.8)
Clarendon	4 (3.3)
St. Catherine	32 (26.4)
Reason for referral, No. (%)	
For post-operative therapy	78 (65)
For pre-operative therapy	24 (20)
For palliative therapy (metastatic disease)	18 (15)

Table 2. Histopathological Details from Surgico-Pathological Staging

Characteristic	No* (%)
Histology	
Invasive ductal carcinoma	53 (71.6)
Invasive lobular carcinoma	3 (4.1)
Ductal carcinoma in situ	4 (5.4)
Other	14 (18.9)
Surgical margins	
Free of tumour	64 (92.8)
Involved	5 (7.2)
Tumour grade	
1	18 (29.5)
2	32 (52.5)
3	11 (18.0)
Tumour size	
T1	11 (15.7)
T2	36 (51.4)
T3	21 (30.0)
T4	1 (1.4)
Tx	1 (1.4)
Median tumour size, cm (range)[IQR]	3.5(0.4-13)[4.0]
Nodal status	
N0	29 (43.9)
N1	20 (30.3)
N2	13 (19.7)
N3	4 (6.1)
Median no. of nodes examined (range)[IQR]	11(2-20)[5]
TNM Stage (available for n=65)	
I	7 (11)
IIA	18 (28)
IIB	19 (29)
IIIA	16(25)
IIIB	1(2)
IIIC	4(6)
ER/Her2 Status, No (%)	
ER+/Her2-	32 (46.4)
ER-/ Her2-	23 (33.3)
ER+/Her2+	11 (15.9)
ER-/Her2+	3 (4.3)

Discussion

In this single-institution retrospective review, breast cancer was by far the most common cancer seen in the Haematology/Oncology clinic of an urban academic hospital offering surgical and medical oncology services. Most breast cancer patients were referred from the surgical service after definitive breast cancer surgery.

Breast cancer-specific survival is known to worsen with advanced disease stage, with published 5-year relative survival rates of 55% for TNM Stage III breast cancer, compared to 97-100% for Stage I disease (Sant et al., 2004). We found that only 11% of women had Stage 1 (T1N0) disease, compared to published rates of 29 to 41% in other countries (U.S. Department of Health and Human Services, 2001; Sant, 2001). While this disparity may be due to referral practice (some patients with small T1N0 tumours may be treated surgically only, without referral to the medical oncology clinic), previous studies out of our institution that included all specimens submitted for histopathological evaluation found that 16% of breast cancer cases were Stage 1 (Walters, 1994). In our review, the majority (56%) of pathologically staged patients had lymph-node positive breast cancer. This differs from reported statistics from both the United States of America and Europe, with corresponding rates of 24% (U.S. Department of Health and Human Services, 2001) and 31% (Sant, 2001; Sant et al., 2004) respectively.

The more advanced stage of presentation augurs a poor

outcome for many Jamaican women with breast cancer. This is especially concerning as, stage for stage, survival appears to be worse when compared to elsewhere; for example, our 5-year survival for Stage I disease is in the order of 67% (Walters, 1994), versus 97-100% in other countries (Sant et al., 2004). This may be related in part to under-staging, and there are no published reports on survival for more advanced stages of disease in Jamaica. There are several possible reasons for international differences in breast cancer survival rates, which have been shown to differ between developed and developing countries (Parkin et al., 2005), between the U.S. and Europe (Gatta et al., 2000) and even within Europe (Sant et al., 1998). Longer survival in one country versus another may be due to the availability of better treatment, to similar treatments being more effective because diagnosis is made at an earlier stage of disease, or simply to early diagnosis without any advantage to the patient (lead-time bias) (Sant et al., 2004).

With regards to breast receptor biomarkers in the study population, the ER positivity rate compares to previously reported rates in Jamaica of 63% (Alfred et al., 2012). There are no previous local reports of Her 2 positive rates, and results of an ongoing study are awaited. We found that one-third of tumours were negative for both ER and Her2. PR testing was unavailable locally during the period under study therefore the prevalence of triple negative breast cancer could not be ascertained. As the triple negative profile is a surrogate for basal-like breast cancer, known to be a more aggressive breast cancer subgroup with worse prognosis (Dent et al., 2007), and PR testing is now available locally, studies will be directed at ascertaining the prevalence of triple negative breast cancer in the Jamaican population.

The systemic management of node-positive and high-risk node-negative breast cancer involves multi-agent chemotherapy, most commonly with an anthracycline and taxane. In this review, only 50% of patients who received chemotherapy received a taxane; this likely represents suboptimal therapy for a number of women who had large primary tumours and/or many lymph nodes involved. In our clinical experience, the main reason for patients not receiving a taxane is its high cost and during the period of review there was no government health subsidy to assist with chemotherapy costs. This situation has changed subsequent to this review, with the National Health Fund providing subsidies for taxane therapy for breast cancer, thus improving the availability of standard breast cancer adjuvant treatment.

It must be noted that while 20% of breast cancer patients had been referred for pre-operative systemic therapy, some of those who had surgery prior to referral (65%) may have been candidates for this therapy (based on large tumour size and/or nodal status). Pre-operative chemotherapy has several potential advantages, including tumour down-sizing and increasing rates of breast-conserving surgery, and should be considered when appropriate.

In North America, the ASIR of breast cancer is 99.4 per 100 000 (Jemal et al., 2004) while in Jamaica the ASIR is 43 per 100 000 (Gibson et al., 2010). The relatively stable

ASIR in Jamaica over the past decade, with an ASIR of 40.1 per 100 000 in the previous Jamaica Cancer Registry report (Gibson et al., 2008), is not in keeping with the increasing incidence of breast cancer in other countries, attributed to screening mammography (Richardson et al., 2005). In populations that receive regular screening mammography, the percentage of patients with locally advanced disease is less than 5% (Seidman et al., 1987). Approximately 30% of our patients had Stage III disease, reflecting the inadequacy of national programmes for early breast cancer detection. In a study of patients who had undergone surgery for primary breast cancer, it was shown that patients who had mammographically detected tumours had a statistically significant DFS advantage over patients who had clinically detected tumours (95% vs. 89%, respectively; $p=0.0003$) (Salama, 2005). Very few women in our review had mammographically detected tumours; in fact, most had tumours that were large enough to allow self-detection (median size 3.5cm). This is in keeping with findings from the largest series of breast cancer cases reported from Jamaica, with a mean tumour size of 4.1 ± 2.7 cm found in 641 specimens (Shirley et al., 2010).

In this review, we found that most breast cancer cases present with large tumours, with pathological staging confirming lymph node involvement in the majority. Pre-operative systemic therapy should be considered as an option for eligible patients. A national screening mammography programme is recommended for detection of earlier lesions, with the potential for improved breast cancer survival.

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