A Profile of Female Breast Cancer Patients in a Kenyan Urban Private Hospital

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Abstract

Background
Breast cancer shows differences between the Afro-American and Western population. We designed a study to evaluate important characteristics of a mixed socio-demographic population of female breast cancer patients who are referred from monthly breast clinics or seek care at a private hospital and compare it to similar characteristics in the western population.
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Methods
This was a retrospective study of two hundred and sixty patient case records with a diagnosis of breast cancer. Patient charts were retrieved and assessed for age, stage and parity profiling and this was compared to western data by search through medical databases (Pubmed and Uptodate Ver 19.3.)

Results
The highest proportion of cases was in the 45-49 year range (15%). 136 records were retrieved with data on parity and staging. Of all patients, 26% had a parity of three while 16% of the cases were nulliparous. Of the patients, 124 had data on staging; 67.5% had late disease at the time of presentation. Of those under 50 years, 31% had early disease. Patients over 50 made up 34% of the women.

Conclusion
Aga Khan University Hospital sees a different age profile at time of diagnosis from that seen in the Western population which is mainly postmenopausal. Despite our population being affluent, urban and with access to information and healthcare facilities, there is still significant number presenting with late disease.

Introduction

The Aga Khan University Hospital has an active breast centre that mainly handles breast cancer patients. In addition, monthly clinics to sensitize people on early detection of cancer are done within the centre and at outreach clinics. We do not have a comprehensive analysis of the population of patients we see at the clinic in terms of risk stratification, mortality and follow up. Anecdotally, most of our patients are young, African, relatively affluent, adult women, with tertiary level of education. Furthermore, those who present with cancer do so at an advanced stage. The proportion of male patients who are diagnosed with breast cancer at our centre is negligible. We do not have accurate estimates but about three cases of male breast cancer undergo surgery annually at our centre.

Breast cancer shows racial difference in the age, stage, grade, receptor status. and mortality of the disease (1, 2). Western white population incidence is highest at 70 – 75 years at 124 per 100,000 with a corresponding mortality of 24 per 100,000. Afro-Americans have relatively lower proportional incidence rate of 113 per 100,000 but higher mortality rates of 33 per 100,000 (3). Accurate data in Africa is lacking but estimates from several Sub-Saharan African countries range from 11 to 20 per 100,000 women and a later report by Wabinga et al in 2009 reporting an incidence of 31/100,000 in Uganda (4). It has been postulated that the younger African population suffers a severe form of the disease as seen by higher stage and grade at diagnosis and that this mirrors the Afro-American statistics probably due to their shared ancestry (2). In Kenya, there is no established cancer registry hence incidence rates have not been accurately quantified. However institution based studies show a peak incidence in women aged 41-50 (5). Amongst many reasons for late presentation, lack of access to information on breast cancer has been

blamed for the presentation with advanced disease.

Nulliparous women are at increased risk for breast cancer compared to parous women; the relative risk ranges from 1.2 to 1.7 (7). It is not clear whether multiparity confers protection against breast cancer. A large Spanish multicenter study suggests a decreased risk with increasing number of pregnancies (8). Parity has not been shown to have any inter racial differences despite other differences observed in age and receptor status (9).

Racial differences, parity status and age are all low to medium risk factors. Other independent low to medium risk factors include atypical proliferative benign breast disease, age at first birth, early menarche, late menopause, use of hormone replacement therapy, smoking, obesity and exposure to ionizing radiation. None have been studied convincingly to ascertain cause-effect or by dose-response relationships. This study aims to profile our patients' age, parity and stage of presentation. We compare the data with that of Western data and other African and public hospital data to determine whether the suggested risk factors are reflected in our breast cancer clinic population. We did not examine the other risk factors mentioned above due to paucity of data and inability to standardize methodology.

Materials and Methods

We conducted a five year retrospective review of case records at Aga Khan University Hospital. We included all women with histologically confirmed breast cancer during the study period. Case files were retrieved from the records department using the ICD 9 coding system. Data on age, sex, parity and stage at presentation was extracted. There were 260 cases with data on age and sex and 124 cases with complete data on age, sex, parity and stage. Data on staging was either recorded from the pathology report which was available in the files from analysis of the biopsy specimen, clinical assessment of the admitting clinician as recorded at admission or when absent, it was derived by assessing the staging investigations entered in the file i.e. bone scan report, chest X-ray and abdominal ultrasound. The AJCC 6th edition staging system of 2002 was used (10).

Data was collected using a form designed for the study and entered into a spreadsheet program (Microsoft Excel 2007). The Chi square test was used to assess significance of differences in incidence across the age groups.

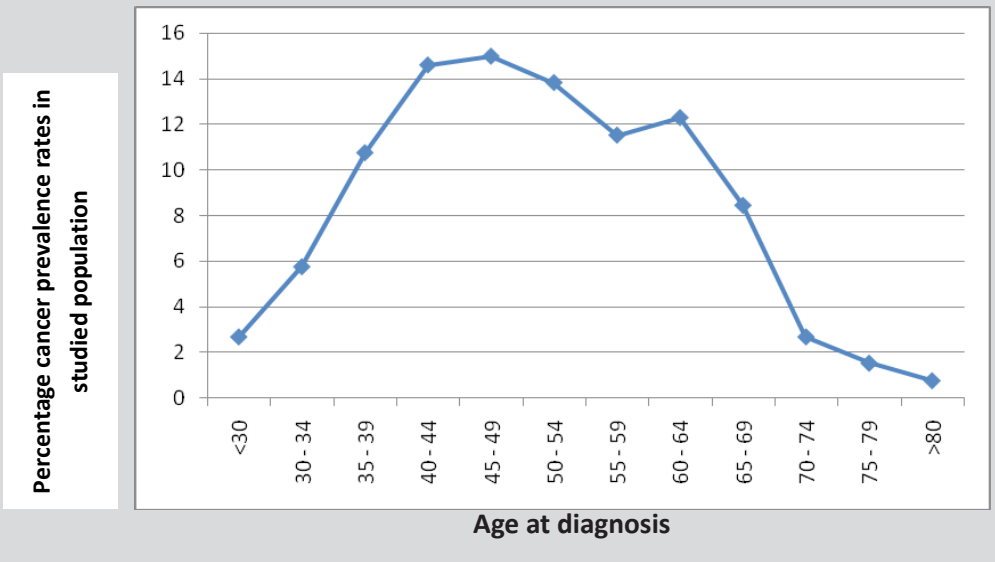
A review of previous publications was done and similar data on parity, age, stage and sex was extracted. The results (percentages, rates and proportions) were juxtaposed, by way of tables and graphs, with those found in our study.

Results

A total of 260 records were retrieved which represented more than 90% of all breast cancer cases seen at the hospital from 2005 to 2009. Of these, data of the years 2008, 2009 were complete with data on parity and stage. This was a total of one hundred and thirty six records. The data of the initial three years was incomplete for the staging and parity. The age range was 26 to 94 years with a median age at presentation of 50.

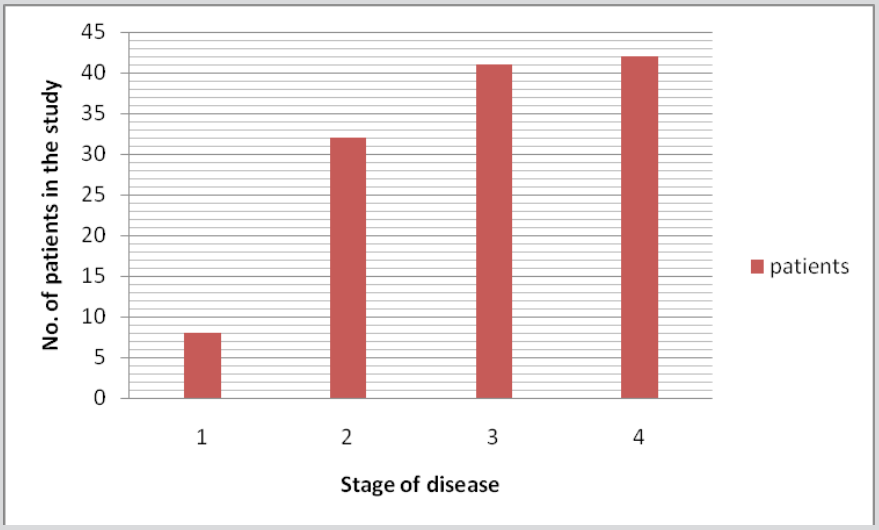
Data was stratified according to age (Fig 1). The highest proportion was seen in the 45 – 49 age group.

Fig 1. Age-incidence



Premenopausal (<50 years old) represented 49% of the studied population. Of the 260 records, 124 were further analyzed for stage at presentation as shown below (Figure 2). 32.5% of patients presented with early disease i.e. stage I and II. Of the premenopausal population, 31% had early disease while post menopausal subjects comprised 34% of the studied patients.

Fig 2. Stage at presentation



Data on parity is as shown in the table below, with the highest frequency of breast cancer seen with a parity of 3 (Table 1).

Table1: Parity of the Patients

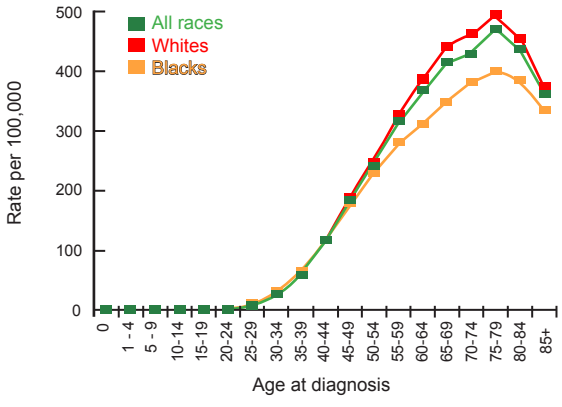
Parity	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
No. of patients	16	15	29	33	12	12	4	1	2	1
(%)	13%	12%	23%	26%	10%	10%	3%	1%	2%	1%

The highest frequency in parity was 3 births (26.4%). The nulliparous women had a cancer incidence of 13%.

Discussion

Aga Khan Hospital, Nairobi is a private teaching hospital with an active breast clinic that runs thrice a week. There are also monthly outreach clinics to sensitize the public and also pick any early lesions that are later followed up and managed at the hospital. Over the past five years, we have seen over 250 cases as either primary presentation, referrals or those who were diagnosed elsewhere and have come for chemotherapy. From the records extracted, we did not have a single case of male breast cancer. This may reflect the relative rarity of the condition amongst male patients and the suboptimal awareness of male breast cancer in the Kenyan population.

Fig 3. SEER age-specific incidence rates per 100,000 comparison 2000-2003



Our female breast cancer study population is generally younger with a median age of 50, compared to the western figure of 63 as shown in Figure 3 (11). This racial disparity in age at presentation has been reported before with several theories explaining the differences (1, 5, 11, 12). Diet, body habitus, lifestyle, socioeconomic status and tumor biology (with a genetic basis) are some of the factors mentioned in literature (1, 2). Our study population may be similar to that of the West in terms of diet, socioeconomic status and body habitus as it is extracted from the relatively affluent section of Kenyan society. We however note a pattern of disease that presents early and is much more advanced at presentation. It has been noted that breast cancer in Afro-American population and sub-Saharan Africa generally presents at an early age, presents at an advanced stage and takes a more aggressive course in terms of the molecular subtype (triple negative disease being the most severe form) and metastatic potential (1, 2, 13). Therefore we ask 'Is there a genetic component in our population that predisposes to the more severe type of breast cancer?'

The stage at presentation was late in 67.5% of patients. This is similar to African/Kenyan data (4, 5). We noted an insignificant difference in the proportion of patients presenting with early disease across the 50 year divide. We used staging as a surrogate of severity of breast cancer since it is the single most important factor in determining prognosis and choice of therapy. More aggressive cancers tend to have a metastatic potential and are found to have spread regionally and distally at the time of diagnosis. This therefore demonstrates the higher proportion of our patients with aggressive disease. We would have liked to incorporate tumor grade and receptor status (Estrogen, Progesterone and HER-2-neu) in addition to using staging as a measure of but the data was inadequate therefore no firm conclusions could be made.

An unexpected finding was that of a relatively lower incidence of cancer in nulliparous women 13% as opposed to 26% in those with a parity of 3. Published data report strong positive correlation between low parity with higher incidence of cancer (7, 8, 9). Whether this was a chance observation or that we in Africa are seeing a different disease is subject to further studies.

The study was retrospective hence inherently susceptible to problems such as poor record keeping, lack of standardization of clinical tools and methods of recording. We particularly faced problems in collecting data from private patients where clinical assessment was incomplete and details on treatment and follow-up was highly abbreviated. Some of the staging provided was derived from the files after review of results e.g. chest radiographs, bone scans and abdominal ultrasound. This was done when no formal staging was done or not documented by the clinician.

Conclusion

African breast cancer shows important differences from that seen in the West. Differences are seen in stage at presentation, age at presentation and parity. This may either be due to environmental or genetic differences in the tumor biology. Further genetic studies may be necessary to identify these factors.

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