An Audit of the Management and Associated Contextual Correlates of Clinical Presentations of Breast Cancer in a Tertiary Hospital in South West Nigeria

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ABSTRACT : *Breast cancer is a worldwide disease resulting in many deaths. This study investigated the management of breast cancer with respect to treatment modalities and other clinical factors in the study population in a university teaching hospital in South West Nigeria. A five-year retrospective review of 583 breast cancer records of patients from 1st January 2008- 31st December 2012 who presented newly at surgical out-patient and radiotherapy departments of the Hospital was undertaken. Analysis was carried out using Statistical package for social sciences (SPSS version 15.0). Mean age of the breast cancer patients was 44.9 (sd=13.3); there were more females (98.3%); 28.9% presented at stage II with invasive ductal carcinoma histological type (93.6%); almost three-quarters of the patients received combination treatment modalities; 55.5 % and 47.8% of the patients received a two-drug neoadjuvant and adjuvant regimen respectively; 25.8% completed 4 cycles of neo-adjuvant chemotherapy treatment while 32.3% completed 6 cycles of adjuvant chemotherapy. The disease was majorly managed using combination therapy and involve both adjuvant and neo-adjuvant therapies. More efforts should be put into public awareness on breast cancer, health education and improving socioeconomic status of the patients at risk and the provision of more facilities for early detection and treatment.*

Key words: *Adjuvant Therapy, Breast Cancer, Combined Treatment, Neo-adjuvant Therapy, Treatment Modalities.*

I. INTRODUCTION

Globally, Breast Cancer (BC) is the most frequently diagnosed cancer and the leading cause of cancer death in females. It is a leading cause of morbidity and mortality among women worldwide. Most BCs (>75%) are diagnosed at an early stage or are operable [1]. In Nigeria the prevalence of BC is 116 per 100,000 and 27,840 new cases were expected to develop in 1999. Recent observations show that the frequency of BC has risen over that of non-Hodgkin's lymphomas and cervical cancer in Nigeria. This trend was attributed to several factors; the acceptance of fine needle aspiration as an accurate diagnostic evaluation, increased awareness about BC and usefulness of breast self-examination [2]. Breast Cancer story in Nigeria is dismal consequent on the late stages of presentation. Studies have shown that the Nigerian BC woman presents at a mean age of 47 years, being an earlier age than the 60 years of her Western counterpart [3]. Optimal management of patients with early breast cancer involving integrated treatments encompassing surgery, radiotherapy and systemic therapy had led, together with BC screening, to mortality reduction [4].BC is considered the most dreaded non-communicable disease in developing countries where it is invariably fatal, due to lack of adequate preventive and curative services unlike in developed countries which have policy, strategies and programs for cancer prevention and management [5]. Several reports have it that, although there is extensive knowledge of the management and outcomes of BC treatment [2,3,5], there is still a high incidence of breast cancer in sub Saharan countries and Nigeria is one of the countries with the highest rate. This study audited the pharmacological and other management modalities in addition to the associated contextual correlates of clinical presentations of breast cancer in a tertiary hospital in south west Nigeria

II. METHOD

2.1 Study Location

The study was conducted at the University College Hospital, popularly known as UCH. The UCH is strategically located in Ibadan, the largest city in West Africa which is also the seat of the first University in Nigeria. It is one of the largest and best equipped teaching hospitals in Nigeria. The patients' turn out in the accident and emergency (A & E) Department of the University College Hospital averages 6000 annually and about 150,000 new cases go through the various clinics every year.

2.2 Study Design.

A five-year retrospective review of breast cancer records from 1st January 2008- 31st December 2012 was conducted in University College Hospital, Ibadan. Relevant information was retrieved, entered using Epidata software (version 3.1) and analyzed using statistical package for social science software (version 15.0).

2.3 Study Size and Population

All breast cancer patients who presented at the surgical out- patient (SOPD) and Radiation Therapy Departments (RTD) of the University College Hospital, Ibadan within the period of 1st January 2008- 31st December, 2012 formed the study population. From the register of all patients attending the RTD and SOPD of the hospital, breast cancer patients were selected and for each case of breast cancer, data such as the medical record references, demographic characteristics (age, sex, education, occupation, married status etc), reproductive factors (parity, menstrual history, age at menarche, breast feeding history etc) for the female respondents, clinical investigations (stage at presentation, clinical investigations, tumor size, disease histopathology etc), treatment modalities (surgery, chemotherapy, radiology etc), cycles of chemotherapy received, the doses of the drugs and types received, treatment outcomes, patient follow-up and the impact of the pharmacists (availability of the drugs at the oncology department, accurate dispensing of the prescribed drugs).

2.3 Data Collection Method

The clinic case notes of all breast cancer patients that presented during the study period were reviewed and data collected using a profoma, designed to capture demographic characteristics of the study population such as in the completed files, details of epidemiological data was retrieved (yearly distribution, age range), diagnostic, therapeutic, histopathological data of the patients. Patients were first identified from the Oncology register at the Surgical and Radiotherapy department of the hospital, after which the medical records and histopathology reports were consulted to complete the data. The validity and reliability of the study instrument were tested in a pilot study and some variables in the data collection instrument were modified.

2.4 Data Management and Statistical Analysis

Data entry was done using Epidata (version 3.1) while cleaning and analysis were carried out using Statistical package for social sciences (SPSS version 15.0). Descriptive statistics was used to examine the data and to also compute the frequencies and proportions. Tests of association were carried out using chi-square between clinical presentations, and the treatment modalities. $P<0.05$ was considered statistically significant.
The body mass index (BMI) of the study population was derived by computing the weights and heights of the BC patients that were obtained from the case notes, using the formula :
$BMI = weight/height^2$.

2.5 Inclusion / Exclusion Criteria

All cases of breast cancer in women and men that were registered in the SOPD and RTD of the University College Hospital, Ibadan within the period of 1st January 2008- 31st December, 2012 and were newly diagnosed were included in the study. Patients with non- carcinogenic breast lumps were excluded.

2.6 Limitations of the Study

The limitations of this study include
- The retrospective nature of our data and the relatively small number of patients treated over a span of 5 years
- Poor and irregular follow-up, and so it was difficult to know the exact time of recurrence or death; this made it impossible to calculate the survival rate of the patients.
- Some variables such as tumour size after receiving neo-adjuvant chemotherapy were not available in the case notes and so the efficacy of the drugs could not be obtained.
- The adequacy of record keeping might not have been ascertained.

2.7 Ethical Considerations

Ethical approval was obtained from the University of Ibadan/University College Hospital Institutional Review Board. Written informed consent to extract data from hospital registers and records was obtained from directors of the hospital. Maximum confidentiality of patients' medical record was ensured.

III. RESULTS AND DISCUSSION

3.1. Demographic Characteristics of Study Population

The socio-demographic characteristics of the BC patients are presented in TABLE 1. The mean age of the BC patients at presentation within the period of review was 44.9 (SD=13.3) years. More than half of the patients were in the 31-50 age category. This high prevalence among middle age group is in tandem with other studies [6-9]. It is now recognized that there is a huge breast cancer burden among young and middle-aged African women at their prime age with a consequent significant increase in socio-economic, physical and psychological harm [10] The mean age at diagnosis reported in most developing countries is around 50 years compared to 60 years in Western countries [11]. Only a handful (583) of patients presented newly with breast cancer at the SOPD and RTD of the hospital over the 5-year period. This is not a particularly high prevalence, perhaps due to economic reasons, lack of awareness, lack of access and other socio--cultural factors. Thus, it might not have been an issue of low detection rate but rather potential patients were not presenting for diagnosis and/or management. In Africa, breast and other cancers are not rare. In Nigeria, on the other hand, the number of women at risk of BC has been shown to steadily increase from approximately 24.5 million in 1990 to approximately 40 million in 2010 and is projected to rise to over 50 million by 2020 [12]. Also, another literature report indicated the incidence of breast cancer in Nigeria to be on the increase from 13.8-15.3 per 100,000 in 1992 to 33.6 per 100,000 in 2000 [2]. Globally, epidemiologic studies have shown wide variations in the observed BC burden between 1990 and 2000. Age-adjusted detection rates in North America, Northern Europe, Australia, and New Zealand averaged 95–100 cases for 100,000 persons. In contrast, incidence was quite low in Western Africa and Eastern Asia, at approximately 20 per 100,000 [13, 14]. Estimates of age-standardized incidence rates (per 100,000 women) are 20.2 in Eastern Africa, 13.5 in Middle Africa, 24.8 in Western Africa, and 31.8 in Southern Africa [14]. In Sub-Saharan Africa, the incidence of Breast cancer is put at 10-40 per 100,000 [8]. In this study, majority of the study population were females with less than two percent of the population being males. This is not coming as a surprise as the disease is said to occur almost entirely in women [11]. Male BC remains a rare entity with a prevalence rate of less than 1% of cases of mammary neoplasia [15, 16]. About half (52%) of BC patients in this study population were either overweight or obese. This tallies with other reports that have established obesity as risk factors for BC [17-19]. Nonetheless, a significant proportion (38.8%) had normal weight. Majority of the patients in this study (85.9%) were either married, divorced or widowed. What is significant here is that most of the patients must have had history of pregnancy and child-bearing; factors that have great bearing on breast cancer incidence and management.

The majority (66.8%) of patients belonged to the Yoruba tribe. This is expected since the study was carried out in the south western region of the country. A similar pattern was seen in a study conducted in Zaria (northern Nigeria) in which 96.1% of the study population were Hausa females [20]. BC patients that presented at the UCH had a high level of education (84%) and were self employed (57.5%). They were also majorly urban dwellers (88.8%). This is a clear indication that the majority of the patients were the well-enlightened people who had the economic means to present themselves for management to the near exclusion of relatively poor, un-informed rural dwellers.

Table 1: Background characteristics of the study population

Variables	Frequency	Percentage (%)
SEX		
Male	10	1.7
Female	573	98.3
Total	583	100.0
AGE		
≤30	80	13.8
31-50	326	56.3
≥51	173	29.9
Total	579	100.0
BODY MASS INDEX		
Underweight	44	9.3
Normal weight	183	38.8
Over weight	135	28.6
Obese	110	23.3
Total	472	100.0
MARITAL STATUS		
Single	77	14.1
Married	423	77.6
Widowed	34	6.2

Divorced	11	2.0
Total	545	100.0
ETHNICITY		
Yoruba	383	66.8
Igbo	137	23.9
Hausa	4	0.7
Others	49	8.6
Total	573	100.0
LEVEL OF EDUCATION		
Primary or lower	75	16.0
Secondary or higher	395	84.0
Total	470	100.0
OCCUPATION		
Civil servant	134	27.0
Self Employed	284	57.3
Unemployed	15	3.0
Students	51	10.3
Others	12	2.4
Total	496	100.0
LOCATION		
Urban	500	88.8
Rural	63	11.2
Total	583	100.0

3.2 Reproductive and other Characteristics of the Female BC Patients

Majority of the patients' age at menarche was between 10 to15 years of age with mean age of 15.06 (S.D=2.17). This is almost similar to a study carried out in the Eastern part of the country [21]. Over 50% of the study population had between 1 - 5 children, pre-menopausal (62.5%) with irregular menstrual history (56.1%). These correspond with other studies [9, 22]. About three-quarters (71.3%) had a breast feeding history with just a few of them (2.9%) pregnant at the time of presentation. It is reported that only 2% of breast cancers are diagnosed in pregnant women; 1 in 3000 women develop breast cancer during pregnancy and pregnant women tend to develop them usually in their 30s [23]. Further, BC in pregnancy is said to be linked with more metastases and poorer outcomes than BC in non-pregnant women [24]. For this population, management of BC is critically influenced by the stage of pregnancy; Anthracycline-based chemotherapy has been advised during the first and second trimesters [25]. Nonetheless, the goals of breast cancer treatment in a pregnant patient are the same as the goals of treatment in a non pregnant patient [26]. Studies have shown that childbearing reduces risk, with greater protection for early first birth and a larger number of births; that breastfeeding probably has a protective effect and both oral contraceptives and hormonal therapy for menopause cause a small increase in breast-cancer risk, which appears to diminish once use stops [27]. Another study on 250 Nigerian women with BC found that increased parity (>4) carried an overall protective effect [9]. Summarily, various reproductive and other risk factors have been identified for BC. These include advanced age, female gender, early menarche, late first full-term pregnancy, nulliparity, never breast-feeding, long menstrual history; late menopause, obesity, smoking, physical inactivity, and family or personal history, use of hormone replacement therapy and consumption of one or more alcoholic beverages per day [2, 11, 12]. Some of these factors might have played some roles in the pathophysiology of the breast cancer in the patients in our study. In this study, most cases (85.5%) were late presentations at stages II- IV. Details in TABLE 2. Breast cancers in African countries are said to be typically characterized by a relatively advanced stage distribution; retrospective studies have reported that a great majority of African [8, 21] Asian sub-continent [28] and Nigerian [21, 29] women present with late stage BC. Findings from a study tended to support the possibility of inherently more aggressive tumour biology among African women. These investigators found that 81% of patients with brief symptom duration (3 months or less) had Stage III or IV BC. [30]. Also, following a detailed pathologic analysis of the proliferative activity in tumours of 300 Nigerian women, it was reported that mitotic indices were notably higher than the range of values typically reported from western databases [31].

Table 2: Descriptive analysis of the female breast cancer patients

Variables	Frequency	Percentage (%)
Age at Menarche		
10-15	261	64.6
16 and above	143	35.4
Total	404	100.0
Parity		
None	75	15.6
1-5	291	60.0
6 and above	116	24.1
Total	482	100.0
Menopausal Status		
Pre-menopause	300	62.5
Post-menopause	180	37.5
Total.	480	100.0
Menstrual History		
Regular	151	43.9
Irregular	193	56.1
Total	344	100.0
Pregnant at time of presentation		
Yes	13	2.9
No	429	97.1
Total	442	100.0
Breast feeding history		
Yes	343	71.3
No	138	28.7
Total	481	100.0
Stage at presentation		
stage I	83	14.5
stage II	166	28.9
stage III	163	28.5
stage IV	161	28.1
Total	573	100.0

3.3 Other Clinical Presentations

Majority (89%) of the patients had a positive Lymph Node status. This is an indication of metastases and late presentation in tandem with other studies [21, 28]. A vast majority (93.6%) presented with invasive ductal carcinoma histological type. This agrees with other studies carried out in Benin and Ibadan, all in Nigeria [29, 32]. These findings suggest that the predominant histopathological type of breast cancer in Nigeria is the invasive ductal carcinoma. Majority (83.5%) had tumour size between 0.5 – 10.0 cm and 63.4% and were in pathological grade 2; these values are quite similar to other report in Nigerian women [21].

The pattern of presentation was at its peak in the fourth year (2011) with 36.3% newly diagnosed BC patients while 8.4% of the patients presented in the first year (2008). See TABLE 3

Table 3: Patient's other Clinical Presentations

Variables	Frequency	%
Lymph Node Status		
Positive	308	89.0
Negative	38	11.0
Total	346	100
Disease Histopathology		
IDC	501	93.6
IMC	8	1.5
ILC	2	0.4
ICC	14	2.6
I	2	0.4
MuC	8	1.5
Total	535	100

Tumour Size		
0.5-10.0	313	83.5
10.5and above	62	16.5
Total	375	100
Pathological Grade		
Grade 1	31	15.1
Grade 2	130	63.4
Grade 3	44	21.5
Total	205	100
Yearly Patterns of Presentation		
Year 1	49	8.4
Year 2	99	17.0
Year 3	128	22.0
Year 4	212	36.3
Year 5	95	16.3
Total	583	100.0

3.4 Treatment Modalities

Almost three-quarters of the BC patients received combination treatment modalities (i. e surgery, chemotherapy and/or radiotherapy); 25.5% had chemotherapy alone, 4.7% had radiotherapy while 4.4%, surgery alone. Patients who received a two-drug chemotherapy regimen as neoadjuvant and adjuvant chemotherapy were more compared with other drug regimen. The two-drug regimen could be a combination of adriamycin and cyclophosphamide (AC), epirubicin and cyclophosphamide (EC), cyclophosphamide and methotrexate (CM), cyclophosphamide and 5-fluorouracil (CF) and it could be any of these and tamoxifen (T); 35.4% received a three-drug regimen such as CMF, CAF, ACT, CEF, AFP (paclitaxel) and AEP. Majority (87%) of the patients had treatment combinations comprising of chemotherapy, surgery and radiotherapy; closely followed by 85.9% of the patients who received surgery and chemotherapy. Only 43.7% of the study population received neo-adjuvant chemotherapy and 50.6% received adjuvant chemotherapy. This is expected because majority of the patients presented late and with positive lymph node and this corresponds with the study on the prognostic value of proliferation in invasive BC [33]. Majority of the patients completed four cycles of neo-adjuvant chemotherapy and six cycles of adjuvant chemotherapy. This pattern was observed in a study carried out also in Ibadan [22]. No patient had complete seven and nine neo-adjuvant chemotherapy. TABLE 4

In a study carried out in Cameroon it was revealed that chemotherapy played a major role in the treatment of breast cancer. In that study, chemotherapy was mainly neo-adjuvant (55.81%); this was concordant with the higher proportion of locally advanced breast cancer at presentation [34].

Treatment decisions are usually made by the patient and the physician after consideration of the optimal treatment available for the stage and biological characteristics of the cancer, the patient's age and preferences, and the risks and benefits associated with each treatment protocol. Most women with breast cancer will have some type of surgery. Surgery is often combined with other treatments such as radiation therapy, chemotherapy, hormone therapy, and/or targeted therapy [11]. Surgery is the primary treatment for breast cancer; lumpectomy or total mastectomy may be indicated. Radiation therapy may follow surgery in an effort to eradicate residual disease while reducing recurrence rates. .

Adjuvant therapy for breast cancer is any treatment given after Surgery to increase the chance of long-term survival. Adjuvant therapy for breast cancer can include chemotherapy, hormonal therapy, the targeted drug trastuzumab (Herceptin), radiation therapy, or a combination of treatments. Patients who have a higher risk of breast cancer recurrence are more likely to need adjuvant therapy [35]. Evidence-based international treatment guidelines, including those of the National Comprehensive Cancer Network [36] and the National Cancer Institute [37] recommend using adjuvant therapy for patients with early breast cancer. One of the major successes in oncology is the improvement of overall survival as a result of adjuvant chemotherapy in patients with localised breast cancer Neoadjuvant or preoperative therapy is treatment given to treat cancerous tumour before surgery [35, 38]. Neo-adjuvant chemotherapy has been found not to increase the length of time of treatment and chemotherapy for BC usually is done in four, six, or eight cycles [38]. Hormone therapy and chemotherapy are the 2 main interventions for treating metastatic BC. Common chemotherapeutic agents include Docetaxel, Cyclophosphamide, Doxorubicin, Carboplatin, Methotrexate and Trastuzumab. Chemotherapy is usually recommended for all women with an invasive breast cancer whose tumor is hormone receptor-negative, and for women with hormone receptor−positive tumors who might additionally benefit from having chemotherapy along with their hormone therapy, based on the stage and characteristics of their tumor

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[11]. However, it is widely reported that the beneficial effects of chemotherapeutic agents can only be realized if patients comply with their use [39, 40]. It has also been established that, in most cases, combinations of drugs are more effective than one drug alone for breast cancer treatment. Many combinations are being used, and it is not clear that any single combination is the best. Chemotherapy is most effective when the full dose and cycle of drugs is completed in a timely manner [41].

Some of the most common combinations used for breast cancer are
- CMF – cyclophosphamide, methotrexate and fluorouracil
- FEC – epirubicin, cyclophosphamide and fluorouracil
- FEC-T – epirubicin, cyclophosphamide, fluorouracil and taxotere
- E-CMF – epirubicin, followed by CMF
- AC – doxorubicin (adriamycin) and cyclophosphamide
- EC – epirubicin and cyclophosphamide
- MMM – methotrexate, mitozantrone and mitomycin
- MM – methotrexate and mitozantrone [42].

In Nigeria, the most commonly used regimens are FEC, AC, CMF and AT, though the first line drugs in the leading centers are Doxorubicin or Epirubicin based.

Table 4: Treatment Modalities

Variables	Frequency	%
TREATMENT MODALITIES		
Chemotherapy	149	25.5
Radiotherapy	28	4.8
Surgery	25	4.3
Combined treatment	381	65.4
COMBINED TREATMENT MODALITIES		
Chemotherapy + Surgery	328	56.3
Chemotherapy+ Radiotherapy	400	68.6
Surgery + Radiotherapy	501	85.9
Chemotherapy+Surgery+Radiotherapy	507	87.0
TYPES OF CHEMOTHERAPY		
Neo-adjuvant	234	43.7
Adjuvant	259	50.6
ONE DRUG		
Neo-adjuvant	47	8.7
Adjuvant	52	10.1
TWO DRUGS		
Neo-adjuvant	297	55.5
Adjuvant	245	47.8
THREE DRUGS		
Neoadjuvant	189	35.4
Adjuvant	210	41.0
FOUR DRUGS		
Neo-adjuvant	2	0.4
Adjuvant	6	1.1
Number of Cycles Received	Neo-Adjuvant Chemotherapy N (%)	Adjuvant Chemotherapy N (%)
One	22(12.4)	21(9.5)
Two	19(10.7)	12(5.5)
Three	21(11.8)	17(7.7)
Four	46(25.8)	51(23.2)
Five	25(14.0)	44(20.0)
Six	37(20.8)	71(32.3)
Seven	-	1(0.5)
Eight	8(4.5)	2(0.9)
Nine	-	1(0.5)
Total	178(100)	220(100)

3.5 Correlations

Cross Tabulation between Age Categories with Neo-Adjuvant / Adjuvant Chemotherapies are presented in TABLE 5.

Among the different age categories, patients in the 31-50 age group received both neo-adjuvant and adjuvant chemotherapies more compared with the other age groups. The results were significant (p<0.001). This age group is the predominant one with more focussed attention.

This finding corresponds to another study [43]. Age is thought to be one of the factors determining the type of chemotherapy a BC patient would receive; the younger the patient, the more likely he/she is to receive adjuvant chemotherapy.

Table 5: Cross-tabulation of Age with Treatment Modalities

VARIABLE	RECEIVED		TOTAL	X^2	P-VALUE
Neo-adjuvant Chemotherapy	YES	NO			
AGE					
≤30	11(15.3%)	61(84.7%)	72(100%)		
31-50	149(49.5%)	152(50.5%)	301(100%)	27.93	<0.001
≥51	72(45.3%)	87(54.7%)	159(100%)		
Adjuvant Chemotherapy					
AGE	10(14.9%)	57(85.1%)	67(100%)		
≤30	164(56.9%)	124(43.1%)	288(100%)	39.42	<0.001
31-50	83(53.9%)	71(46.1%)	154(100%)		
≥51					

Relationships between Clinical Presentations and Treatment Modalities are presented in TABLE 6.

There was an association between the treatment modalities and year at presentation of the study population. In 2011, majority (52.0%) of the patients received combined treatment while (31.6%) received chemotherapy alone compared to 2010 when (52.1%) received combined treatment and (42.7%) received chemotherapy alone. This result was significant (p<0.001).

Of the 318 patients whose data were retrieved from SOP, majority (61.3%) received combined treatment followed by 31.7% who received chemotherapy. The result was significant (p<0.001).

There was a significant relationship between the stage at presentation and treatment modalities, (p<0.001).

Patients with positive Lymph Node received more (72.6%) of combined treatment and chemotherapy (24.3%). This was significant (p=0.010). This is a necessary aggressive therapy at this stage of the disease.

A high proportion (25.6%) of BC patients received chemotherapy, 3.8% had surgery, 4.7% received radiotherapy, and 65.9% were given combined treatment. The result was not significant (p=0.055).

Out of the patients with tumour size between 0.5-10cm, majority (22.1%) received chemotherapy, 3.8% had surgery, 2.1% received radiotherapy and 72% received combined therapy. This was significant (p=0.028).

Almost half (49.3%) of the patients less than 31 years received chemotherapy. In other age categories, combined treatment was predominant. A significant relationship exists between age and treatment modalities (p<0.001).

Majority of the post menopausal BC patients, (32.4%) received chemotherapy while less than half (20.9%) of the post menopausal BC patients received chemotherapy. The result was significant (p< 0.05).Similar findings were reported elsewhere [44]. Among the patients who were pregnant at time of presentation, 12 (92.3%) received combined treatment. This was not significant (p=0.133). This is in tandem with the guidelines for integrating BC treatment [5, 11].

Table 6: Relationship between Clinical Presentations and Treatment Modalities

VARIABLE	TREATMENT				TOTAL	X^2	P-Value
	Chemo-therapy	Surgery	Radio-therapy	Combined Treatment			
Year At Presentation							
2008	7(8.4%)	1(1.2%)	7(8.4%)	68(81.9%)	83(100.0%)	75.90	<0.001
2009	13(14.1%)	1(1.1%)	2(2.2%)	76(82.6%)	92(100.0%)		
2010	50(42.7%)	4(3.4%)	2(1.7%)	61(52.1%)	117(100.0%)		
2011	54(31.6%)	16(9.4%)	12(7.0%)	89(52.0%)	171(100.0%)		
2012	6(13.0%)	0(0%)	1(2.2%)	39(84.8%)	46(100.0%)		
Department							
SOP	101(31.8%)	21(6.6%)	1(0.3%)	195(61.3%)	318(100%)	60.03	<0.001
Radiotherapy	29(15.2%)	1(0.5%)	23(12.0%)	138(72.3%)	191(100%)		
Stage at Presentation							
Stage I	10(16.7%)	11(18.3%)	2(3.3%)	37(61.7%)	60(100%)		
Stage II	36(28.1%)	0(0%)	1(0.8%)	91(71.1%)	128(100%)	48.69	<0.001
Stage III	23(19.2%)	3(2.5%)	3(2.5%)	91(75.8%)	120(100%)		
Stage IV	25(24.8%)	1(1%)	3(3.0%)	72(71.3%)	101(100%)		
Lymph node Status							
Positive	70(24.3%)	4(1.4%)	5(1.7%)	209(72.6%)	288(100%)	11.32	0.010
Negative	7(20.0%)	0(0%)	4(11.4%)	24(68.6%)	35(100%)		
Disease Histopathology							
IDC	115(25.6%)	17(3.8%)	21(4.7%)	296(65.9%)	499(100%)	20.69	0.055
IMC	2(25.0%)	0(0%)	2(25.0%)	4(50.0%)	8(100%)		
ILC	3(25.0%)	1(8.3%)	0(0%)	8(66.7%)	12(100%)		
CCC	0(0%)	0(0%)	0(0%)	2(100%)	2(100%)		
IMuC	0(0%)	1(25.0%)	1(12.5%)	5(62.5%)	8(100%)		
Tumor Size							
0.5-10.0	64(22.1%)	11(3.8%)	6(2.1%)	208(72.0%)	289(100%)	9.06	0.028
10.5 and above	11(19.3%)	0(0%)	5(8.8%)	41(71.9%)	57(100%)		
AGE							
≤30	34(49.3%)	9(13.0%)	2(2.9%)	24(34.8%)	69(100%)	43.96	<0.001
31-50	63(22.3%)	9(3.2%)	13(4.6%)	198(70.0%)	283(100%)		
≥51	32(20.9%)	4(2.6%)	9(5.9%)	108(70.6%)	153(100%)		
Menopausal Status							
Pre-menopause	88(32.4%)	14(5.1%)	10(3.7%)	160(58.8%)	272(100%)	8.73	0.033
Post-menopause	33(20.9%)	6(30.0%)	11(7.0%)	108(68.4%)	158(100%)		
Pregnant at Time of Presentation							
Yes	1(7.7%)	0(0%)	0(0%)	12(92.3%)	13(100%)	5.59	0.133
No	116(29.7%)	19(4.9%)	21(5.4%)	234(60.0%)	390(100%)		

IV. CONCLUSION

The most common histopathological type of breast cancer found in this study was invasive ductal carcinoma; over three-quarters had positive lymph node and tumour size less than eleven centimeters and moderately differentiated (grade 2). Aside the combined treatment, the treatment modality for majority of the patients was chemotherapy. More premenopausal patients received chemotherapy than the post menopausal patients. It was generally observed that majority of the breast cancer patients received combined therapy. Summarily, age, menopausal status, stage at presentation, lymph node status, tumour size, year at presentation and the department where the patients were treated were factors that affected the effective management of breast cancer. There is a need to address the problem of late presentation so that the management and survival of breast cancer patients would be improved. A more aggressive, more effective enlightenment and health promotion/ education campaign programmes should be mounted particularly directed at the susceptible population especially in the rural areas. Also, treatment with neo-adjuvant or adjuvant chemotherapy should not be an age-based decision, but, instead, should take into account individual patient's estimated absolute benefit, life expectancy, treatment tolerance, and preference.

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