Clinical Prevalence and Management of Breast Cancer in Selected Tertiary Hospitals in Nigeria

Article by Manir Hassan Jega[1], Aminu Abubakar Kende[2]
[1]MBBS, MPH, PGDPA, Texila American University, Nicaragua
[2]B. Pharm, MPH, School of Nursing and Health Sciences, Noida International University, Uttar Pradesh, India
E-mail: drmanir@yahoo.com

Abstract

Background and objective: More than half of the global cancer burden of breast cancer is found in low- and middle-income countries. The magnitude of cancer mortality will be directly related to the presentation and effectiveness of efforts to treat cancer. This study aims to determine the presentation, management and outcome of breast cancer in an African setting.

Methodology: Retrospective study of all consecutive histologically confirmed cases of breast cancer in women was extracted from patient's clinical case notes and histopathology reports. Data was analyzed using SPSS software version 25.

Results & discussions: A total of 107 patients were seen in a period of 5 years with a breast cancer prevalence of 6.6 per 100,000. The mean age of presentation is 44.5 years. 90% presented with Invasive ductal carcinoma and 71% presented with TNM stages 3. 77% had modified radical mastectomy and 42% had chemotherapy. No patient had radiotherapy within the setting.

After six months the overall mortality was 10.3%. Only 8.4% patients were seen in the first follow up while 30% were loss to follow up.

Conclusion: The breast cancer is still a major public health concern in low- and middle-income countries. Late presentation and absence of modern management techniques contributes to the high mortality associated with the disease in this region.

Keywords: Breast Cancer, Presentation, Management, Outcome, Kebbi, Nigeria.

Introduction

Breast cancer is one the most common cancer in the world with 1.7 million (25% of all cancers) new cases diagnosed in 2012 [1, 2]. It is the most frequent cancer among women and represents one in four of all cancers diagnosed in women [1, 2]. In the last five years, there has been a worldwide increase in breast cancer incidence by more than 20%. As it stands, breast cancer is ranked as the fifth cause of death from overall cancer deaths and it is also the most frequent cause of cancer death among women (522,000 deaths in 2012) accounting for about 15% of all cancer deaths. Within the last five years, breast cancer mortality rate had increased by 14%.

According to estimates by GLOBOCAN 2012, it is projected that there will be a substantive increase in new breast cancer cases diagnosed per year and the mortality will increase especially in the low-income countries [1]. Breast cancer remains one of the major non communicable disease of public health importance. The worldwide pattern of the incidence, presentation and management of the disease varies between the developed and developing countries. While the incidence and mortality of breast cancer is of downward slope in the high income countries, the trend appear to be gradually increasing in low resource countries [3].

In Africa, breast cancer is the second leading cancer in women after cervical carcinoma [1, 4, 5]. Generally, the rates of breast cancer in Africa are lower than the rates in the industrialized countries of Europe and North America [6]. Even though African women have a lesser lifetime risk of being diagnosed with breast cancer when compared to their counterparts in affluent settings, their mortality from breast cancer is substantially high [3, 7]. More than half of the global cancer burden of breast cancer is found in low- and middle-income countries, where Africa belongs [8]. According to the United Nations, African continent is undergoing tremendous transformation and have generated remarkable

advances in human development but more commitment has to be shown in areas of achieving the Millennium Development Goals [9]. "Westernization" of the developing world is a term that encompasses both the desirable changes in both socioeconomic improvements as well as decreased exercise and adoption of less desirable habits of dietary changes, all of which are known to increase breast-cancer risk [10].

Consequently, within the last ten years, more breast cancer incidence and mortality has occurred in Africa than it had been in the past [1]. This is an added burden to a region still entangled in the web of communicable diseases [11]. Breast cancer has always been a source of distress to the patients and their families because of the nature of the disease, and the aesthetic and symbolic value invested in the breast in the African setting [12]. In some studies, there are reports of difficulty in obtaining complete family history of cancer due to the cultural beliefs and stigma following a diagnosis of cancer within families [13, 14].

Even though population-based cancer registries are regarded as the gold standard for the determination of accurate cancer incidence in any given population, most of the African countries still rely on hospital-based data, the reason being that the former is more resource intensive compared to the latter.

Due to lack of awareness of the disease and inadequate standard methods for early detection and screening such as mammography, presentation is usually late [15, 16]. This partly explains why mastectomy and adjuvant chemotherapy are the commonest type of management received in this part of the world [17, 18].

Methodology

This study was carried out with approval from the hospital ethical review committee (Ref: FMC/BK/HP/045/P/517/VOL.III)

Retrospective study of all consecutive histologically confirmed cases of breast cancer at Federal Medical Center Birnin-Kebbi and Sir Yahaya Memorial Hospital Birnin-Kebbi, Northwest Nigeria, from 2013–2017.

Data was extracted from patient's clinical case notes and histopathology reports retrieved from medical records departments. Data studied were demographic characteristics, breast cancer presentation, management and outcome.

Inclusion criteria

All patients with histologically confirmed breast cancer only were included in the study.

Result

Data presented in Table 1 shows that 53 (49.5%) of the subjects were aged between 40 to 59 years, mean age was 44.5 years. The educational background ranged from illiterate to college. Distribution wise, 63.6% (68) had none, 16.8% had primary/less education, 13.1% had secondary school and rest of them, 6.5% (7) had tertiary education.

The distribution of the subjects as per body mass index (BMI) 53.3% were within normal limits (BMI, 18.-25), and 46.7% of the subjects had obesity/overweight (BMI>25). The anthropometric predictors to breast cancer indicate that overweight and obesity are risk factors. Marital status wise, 91(85%) were married and cohabiting with their spouses, and rest of them were unmarried (3.7%), widowed /separated (11.2%). Among 107 subjects, 3.7% had family history of breast cancer and the rest 96.3% had no family history/unknown. 18.7% patients were referred from PHC, 57% from General Hospital and just 1 (0.9%) was referred from a private institution, 25 patients (23.4%) primarily visited the institution.

Table 1. Frequency and percentage distribution of patients' demographic profile

Variables		N	%
Age	≤29 years	14	13.1
	30 – 39 years	24	22.4
	40 – 49 years	30	28.0
	50 – 59 years	23	21.5
	≥ 60 years	16	15.0
Sex	Male	0	0
	Female	107	100.0
Education status	Primary	18	16.8
	Secondary	14	13.1
	Tertiary	7	6.5
	None	68	63.6
Body mass index	18 – 25	57	53.3
	26 – 30	44	41.1
	31 – 35	6	5.6
Marital status	Single	4	3.7
	Married	91	85.0
	Divorced/Widowed	12	11.2
Family History	Yes	4	3.7
	No	103	96.3
Referral	Primary Healthcare Center	20	18.7
	General Hospital	61	57.0
	Private Clinic	1	.9
	Not Referred	25	23.4

Table 2. Frequency and percentage distribution of presentation data

Variables	Frequency	Percentage (%)
Year		
2013	16	15.0
2014	13	12.1
2015	17	15.9
2016	37	34.6
2017	24	22.4
Period between notice of symptom and presentation to hospital		
Within 6 months	85	79.4
Within 12 months	16	15.0
Within 18 months	4	3.7
Within 24 months	2	1.9
Clinical Stage at Presentation		
Stage I	0	0
Stage II	9	8.4
Stage III	76	71.0
Stage IV	22	20.6
Pathology type		
Invasive ductal carcinoma	96	89.7
Ductal carcinoma in situ	0	0
Invasive lobular carcinoma	9	8.4
Others	2	1.9

Table 2 shows the distribution of the disease over 5-year period, 2016 with the highest prevalence of the disease 34.6% (37) was observed, followed by 2017 with 24 patients (22.4%), 17 patients (15.9%) in 2015 then 16 (15%) and 13 (12.1%) in 2013 and 2014 respectively. The prevalence of breast cancer over the period of 5-year was 6.6 per 100,000 women. Data presented in Table 4.2 also shows that 91.6% of the patients presented in the advanced stage (stage III and IV) of breast cancer and 8.4% of them were in the initial stages (stage II). The distribution of subjects was, 0% in stage I, 8.4% in stage II, 71% in stage III and 20.6% in stage IV of breast cancer. Out of 107 subjects 79.4% of subjects, reported the disease within 6months and 15% of the subjects reported within a year, 3.7% reported with year and half of experience symptoms and 1.9% within 24 months. Invasive ductal carcinoma was observed in 89.7% of subjects, 8.4% had Invasive lobular carcinoma and 2 subjects' pathological type of cancer was unknown.

Table 3. Frequency and percentage distribution of type of management

Types of Management	Frequency	Percentage (%)
Surgery	77	38.5
Chemotherapy	42	21
Radiotherapy	0	0
Hormonal therapy	81	40.5
Others	0	0

Table 3 shows the distribution of management of cancer among our 107 patients, which many are on more than one treatment. 77 (38.5%) patients had surgery while 42 (21%) of our subjects are on chemotherapy regimen with 81 (40.5%) subjects on hormonal therapy. No subject was on radiotherapy, this due to the fact that there's no facility for such treatment.

Discussion

The prevalence rate of breast cancer in Kebbi State in a period of 5-years (2013-2017) was 6.6 per 100,000 women, among the 1,624,912 women from the 2006 population census for Kebbi states.

There was a rise of incidence seen from 2016, many researches within and outside the continent relate the rising of the incidence to change of lifestyle and adopting western living [15,19,20].

Another study reported 52.0 per 100,000 women in Ibadan, Nigeria and 64.6 per 100,000 women in Abuja, Nigeria and concluded that there was an increase in incidence of breast cancer in Nigeria [15]. The prevalence of the disease is much higher in developed countries [3,21].

The study shows that breast cancer occurs in younger age (mean age 44.5 years) compare to study outside the continent with different race cohort [19]. Many studies within and outside the country shows that breast cancer in Africans occur ten years earlier than women outside the continent [19,22,23]. Black women in America also present earlier compared to white women [24,25].

The stage at presentation of breast cancer in this study was late. The distribution of subjects was, 0% in stage I, 8.4% in stage II, 71% in stage III and 20.6% in stage IV of breast cancer, this result goes along with many studies in developing world [19,22,26]. There is a study in Nigeria that reported 3% stage 1, 24% stage 2 and 72% advanced stage (68% stage 3 and 4% stage 4) [19]. Another in the country, different state got 2% (5) stage 1, 13% (29) stage 2 and 85% late stage (46% {102} stage 3 and 39% {85} stage 4). [19,26]

Lack of education and poverty are one the major reasons for late presentation [16]. More reasons for late presentation in the continent include, seeking for cheaper treatments, spiritual believe, fear of stigma and Ignorance [27,28].

Invasive ductal carcinoma was the most common histological found in this study which is not different from other findings in the country and elsewhere [19,26,29].

Surgery was the most common treatment adopted here and this was often followed by chemotherapy which tally with other findings like Sharma et al. [16]. Surgical procedures ranges from simple lumpectomy to radical mastectomy which is unlike the western countries [30,31]. Modified radical mastectomy is the most common surgical operation with 76.6% of all surgery performed which is just like the study in Ibadan, Nigeria by Ogundiran, T.O., et al. [32].

30% patients treated were lost after the second follow up, about 50% were referred to another hospital

for radiotherapy and 11% were reported dead. Most of the patients that were lost to follow up are presumed dead or can't continue with management because of financial burden. This poor outcome is the same with other report in the continent [13,33,34]

Unlike study by Wood A.J et al. [35] Cyclophosphamide, Fluorouracil and Epirubicin combination is the only chemotherapy regimen found in this study, this could be due to the fact that newer treatment requires advance pathology service and also more expensive [36,37].

There was no a single patient on radiotherapy because of there is no facility for such in the region, this supports the findings of Adesunkanmi, A., et al. [38]. In addition to that Abdulrahman reported that there are only four radiotherapy centers in in Nigeria [7].

In developed worlds where cancer is detected early the survival estimate after 5-year is about 90% while in Africa it is only 12% [39]. The overall mortality rate and survival rate in this study was therefore difficult to determine because of the frequent loss of patients to follow up and missing data. In developing world with limited resources there is need for plans of early cancer detection, affordable and quality healthcare delivery in other to help healthcare workers in managing the rising burden of the disease.

Conclusion

The prevalence rate of breast cancer in Kebbi State in a period of 5-years (2013-2017) was 6.6 per 100,000 women, among the 1,624,912 women from the 2006 population census for Kebbi states. Average age of presentation was 44.5 years, most of the patients were married. More than 60% of them had no any educational background. Late presentation was the most common with 91.6% presenting with advanced stage of the disease and Invasive ductal carcinoma was the most common diagnosed type of breast cancer in the region. Surgical operation was the most common adopted management couple with Chemotherapy and Hormonal therapy, no Radiotherapy available in this region. After 6 months, about 40% of the patients were loss to follow up, few reported dead and half of the them were referred to another hospital. The findings of the study have thrown light on existing conditions and management approaches for breast cancer in a tertiary hospital.

Acknowledgments

References

[1]. Ferlay J, S.I., Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, and B. Forman D, F (2013), GLOBOCAN 2012 v1.0, in Cancer Incidence and Mortality Worldwide: 2013, International Agency for Research on Cancer.: Lyon, France.

[2]. Ferlay, J., et al., Global burden of breast cancer, in Breast Cancer Epidemiology. 2010, Springer. p. 1-19.

[3]. Bray, F., P. McCarron, and D.M. Parkin, The changing global patterns of female breast cancer incidence and mortality. childhood, 2004. 4(5).

[4]. Benjamin O. Anderson, Breast Cancer Epidemiology and Breast Physiology, in Ghana Breast Cancer Specialty Training Course, T.B.H.G. Initiative, Editor. 2010, The Breast Health Global Initiative: Ghana.

[5]. W.H.O, Global status report on noncommunicable diseases 2010, in WHO Library Cataloguing-in-Publication Data, D.A. Alwan, Editor. 2012: Geneve, Switzerland.

[6]. Harford, J.B., Breast-cancer early detection in low-income and middle-income countries: do what you can versus one size fits all. The lancet oncology, 2011. 12(3): p. 306-312.

[7]. Abdulrahman, G.O. and G.A. Rahman, Epidemiology of breast cancer in Europe and Africa. Journal of cancer epidemiology, 2012. 2012.

[8]. Paper, A.C.P., Access to Cancer Treatment in Low- and Middle-Income Countries. 2010, International Union Against Cancer (UICC): USA.

[9]. Nations, U., Millennium Development Goal and Beyond 2015, in Report of the UN Secretary-General. 2013.

[10]. Porter, P., "Westernizing" women's risks? Breast cancer in lower-income countries. New England Journal

of Medicine, 2008. 358(3): p. 213-216.

[11]. Organization, W.H., World health day 2012. 2012.

[12]. Babatunji, O., Awareness, Attitude and Practice of Rural Women regarding Breast Cancer in Northeast Nigeria. Journal of Community Medicine & Health Education, 2012.

[13]. Odigie, V., et al., Psychosocial effects of mastectomy on married African women in Northwestern Nigeria. Psycho-Oncology, 2010. 19(8): p. 893-897.

[14]. Ibrahim, N. and M. Oludara, Socio-demographic factors and reasons associated with delay in breast cancer presentation: a study in Nigerian women. The Breast, 2012. 21(3): p. 416-418.

[15]. Jedy-Agba, E., et al., Cancer incidence in Nigeria: a report from population-based cancer registries. Cancer Epidemiol, 2012. 36(5): p. e271-8.

[16]. Sharma, K., et al., A systematic review of barriers to breast cancer care in developing countries resulting in delayed patient presentation. Journal of oncology, 2012. 2012.

[17]. Kantelhardt, E., et al., Breast cancer survival in Ethiopia: A cohort study of 1,070 women. International Journal of Cancer, 2014.

[18]. Paper, A.C.P., Access to Cancer Treatment in Low and Middle-Income Countries, in CanTreat International, Axios, V. Sowedi Muyingo, Editor. 2010, International Union Against Cancer (UICC) Conference: USA.

[19]. Anyanwu SN (2000) Breast cancer in eastern Nigeria: a ten-year review. West Afr J Med 19: 120-125

[20]. Ihekwaba FN (1992) Breast cancer in Nigerian women. Br J Surg 79: 771-775.

[21]. Althuis MD, Dozier JM, Anderson WF, Devesa SS, Brinton LA (2005) Global trends in breast cancer incidence and mortality 1973-1997. Int J Epidemiol 34: 405-412.

[22]. Adebamowo CA, Adekunle OO (1999) Case-controlled study of the epidemiological risk factors for breast cancer in Nigeria. Br J Surg 86: 665-668.

[23]. Joslyn SA, West MM (2000) Racial differences in breast carcinoma survival. Cancer 88: 114-123.

[24]. Elmore JG, Moceri VM, Carter D, Larson EB (1998) Breast carcinoma tumour characteristics in black and white women. Cancer 83: 2509-2515.

[25]. Gao Q, Neuhausen S, Cummings S, Luce M, Olopade OI (1997) Recurrent germ-line BRCA1 mutations in extended African American families with early onset breast cancer. Am J Hum Genet 60: 1233-1236.

[26]. Ntekim, A., F.T. Nufu, and O.B. Campbell, Breast cancer in young women in Ibadan, Nigeria. Afr Health Sci, 2009. 9(4): p. 242-6.

[27]. Mbuka-Ongona D, Tumbo J M (2013) Knowledge about breast cancer and reasons for late presentation by cancer patients seen at Princess Marina Hospital, Gaborone, Botswana. Afr J Health Care Fam Med 5: 1-7.

[28]. Otieno ES, Micheni JN, Kimende SK, Mutai KK (2010) Delayed presentation of breast cancer patients. East Afr Med J 87: 147-150.

[29]. Kakarala M, Rozek L, Cote M, Liyanage S, Brenner DE (2010) Breast cancer histology and receptor status characterization in Asian Indian and Pakistani women in the U.S.—a SEER analysis. BMC Cancer 10: 191.

[30]. Dodwell, D., et al., Radiotherapy following breast-conserving surgery for screen-detected ductal carcinoma in situ: indications and utilisation in the UK. Interim findings from the Sloane Project. British journal of cancer, 2007. 97(6): p. 725-729.

[31]. Cutuli, B., et al., Breast-conserving surgery with or without radiotherapy vs mastectomy for ductal carcinoma in situ: French Survey experience. British journal of cancer, 2009. 100(7): p. 1048-1054.

[32]. Ogundiran, T.O., et al., Mastectomy for management of breast cancer in Ibadan, Nigeria. BMC surgery, 2013. 13(1): p. 59.

[33]. Kemfang Ngowa, J., et al., Breast cancer profile in a group of patients followed up at the Radiation Therapy Unit of the Yaounde General Hospital, cameroon. Obstetrics and gynecology international, 2011. 2011.

[34]. El Saghir, N.S., et al., Breast cancer management in low resource countries (LRCs): consensus statement from the Breast Health Global Initiative. The Breast, 2011. 20: p. S3-S11.

[35]. Wood, A.J., C.L. Shapiro, and A. Recht, Side effects of adjuvant treatment of breast cancer. New England Journal of Medicine, 2001. 344(26): p. 1997-2008.

[36]. Anderson, B.O., et al., Optimisation of breast cancer management in low-resource and middle-resource countries: executive summary of the Breast Health Global Initiative consensus, 2010. The lancet oncology, 2011. 12(4): p. 387-398.

[37]. Yip, C.-H., et al., Breast cancer management in middle-resource countries (MRCs): Consensus statement from the Breast Health Global Initiative. The Breast, 2011. 20: p. S12-S19.

[38]. Adesunkanmi, A., et al., The severity, outcome and challenges of breast cancer in Nigeria. The Breast, 2006. 15(3): p. 399-409.

[39]. Youlden DR, Cramb SM, Dunn NA, Muller JM, Pyke CM, et al. (2012) The descriptive epidemiology of female breast cancer: an international comparison of screening, incidence, survival and mortality. Cancer Epidemiol 36: 237-248.