FACTORS ASSOCIATED WITH LATE PRESENTATION OF BREAST CANCER IN A TEACHING HOSPITAL IN PORT HARCOURT, NIGERIA

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ABSTRACT

Background: *Most breast cancer patients in developing countries are known to present late with advanced diseases. Patient and system delays have been described with a period longer than 12 weeks considered as prolonged delay. The reasons for delayed presentation/diagnosis are myriad, and some have been reported outside the African setting.*

The aim of this study was to investigate the socio-demographic and clinical factors associated with late presentation of breast cancer in Surgery Department of the University of Port Harcourt Teaching Hospital, from July 2016 to June 2019.

Method: *A five-year retrospective review of data from breast cancer patients was carried out. A minimum sample size of 60 was deemed adequate based on alpha level of 0.05, breast cancer prevalence of 25.7% in Nigeria and precision level ±5%. Data were analysed using the Statistical Package for Social Sciences (SPSS) version 20.0. Bivariate analysis employed Chi square/Fisher's exact statistics in determining significant relationship between the dependent and independent variables.*

Results: *Forty-two (68.8%) out of 61 breast cancer patients presented with late stage disease. There was significant association between age category, attainment of menopause, history of breast feeding, and late presentation of breast cancer.*

Conclusion: *Our study showed that some socio-demographic and clinical factors are found among patients who presented with breast cancer, and most of them are multiparous. Breast cancer occur among patients with relatively younger age than their western counterpart, and most of them were multiparous.*

Keywords: *Associated Factors, Late Presentation, Breast Cancer, Port Harcourt, Nigeria*

INTRODUCTION

Breast cancer, with an annually global incidence of 1.67 million and over 500,000 deaths, is reported to be commonest cancer among women[1, 2]. Late stage presentation and diagnosis is a known problem[3-5] and any factor that is associated or linked to late presentation of breast cancer is discussed here as correlates of breast cancer late presentation. Patient and system delays have been described with a period longer than 12 weeks considered as a delay[6]. The reasons for delayed presentation/diagnosis are myriad, and some have been reported outside the African setting[7-9]. Psychological and behavioral attributes of patients have also been reported as significant reasons for delay in presentation[6]. In a London study investigating the correlates of late presentation, belief was found to be the most significant factor, while age, socio-economic status and ethnicity played no role[10]. Lower survival rates have been found among breast cancer patients with delays of 3 – 6months between onset of symptom and commencement of treatment[11, 12].

After identifying the challenges, an audit of breast cancer carried out in South West Nigeria recommended that the socioeconomic status of the patients at risk of breast cancer be improved upon, in addition to provision of more facilities for early detection and treatment, public awareness and health education on the subject matter[13]. Several other factors seem to be responsible/associated with late presentation. The aim of this study was to investigate the socio-demographic and clinical correlates of late presentation of breast cancer in Surgery Department of the University of Port Harcourt Teaching Hospital, from July 2014 to June 2019.

METHOD

A five-year retrospective review of data from breast cancer patients was carried out. Using the Cochrane's formula and adjusting for finite population[14], a minimum sample size of 60 was deemed adequate based on alpha level of 0.05, breast cancer prevalence of 25.7% in Nigeria[15] and precision level ±5%. Demographic data comprising age at diagnosis, age at menarche, age at menopause, parity, history of breastfeeding and contraceptive use, family history of breast cancer as well as breast examination findings and staging of the disease were collected from the patients using an interviewer-

based data collection template, and breast examination. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0.

Descriptive statistics employed mean, median, standard deviation and range values. Staging of the disease was categorized as early and late. Late presentation categorized as 'yes/no' constituted the dependent variable while the independent variables were the demographic and clinical related data. Bivariate analysis employed Chi square/Fisher's exact statistics in determining significant relationship between the dependent and independent variables. Variables with $P<0.25$ at bivariate analysis were considered statistically significant and included into the multivariate analysis model. Multivariate analysis was done using binary logistic regression model due to dichotomous attribute of the dependent variable of the study. At multivariate analysis, significant correlates were determined based on statistical significance of 0.05 level. Odds ratio and 95% confidence intervals were determined as measures of the strength of association.

RESULTS

Data were collected from a total of sixty-one female patients with breast cancer.

Table 1 summarizes the sociodemographic characteristics of 61 patients with breast cancer showing the mean, median, and the range for age at diagnosis, age at menarche, age at menopause, and parity. The mean age was 43.1±11.6years, 14.0±1.5years, and 50.4±3.5years for age at diagnosis, menarche, and menopause respectively, with mean parity of 3.4±2.1. The median values are also displayed in the table.

Table 1: Summary of demographic characteristics

Variables	Mean ± SD	Median	Min - Max
Age at diagnosis	43.1±11.6years	41.0years	20 – 75years
Age at menarche	14.0±1.5years	14.0years	12 – 18years
Age at menopause	50.4±3.5years	51.5years	44.0 – 55.0years

Parity	3.4±2.1	3.0	0 – 10

SD – Standard deviation

Staging at Presentation

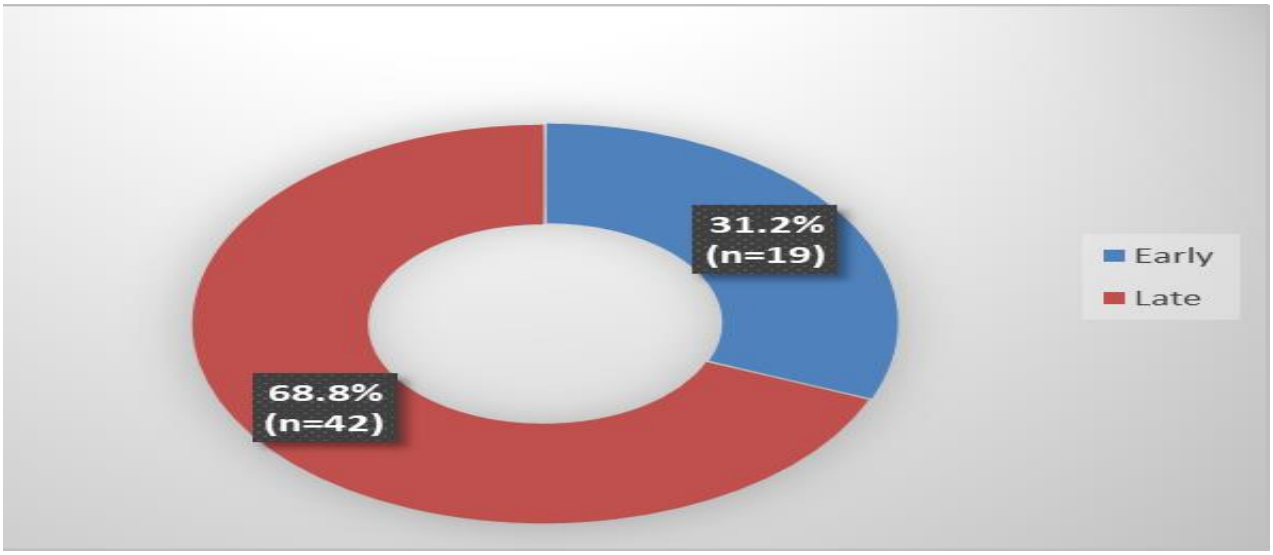

Figure 1: Distribution of early and late clinical staging at presentation

Figure 1 is a pie chart of 61 breast cancer patients showing the stage at presentation, with 68.8% of them being late stage presentation.

Table 2: Bivariate analysis of socio-demographic factors and late presentation among breast cancer patients

	Late presentation		
	Yes	**No**	**Total**
Variables	**n (%)**	**n (%)**	**n (%)**
Age category			
< 40years	19 (79.2)	5 (20.8)	24 (100.0)
≥ 40 years	23 (62.2)	14 (37.8)	37 (100.0)
	*Chi-Square = 1.963; P = 0.161**		
Attainment of menopause			

Yes (menopausal)	11 (91.7)	1 (8.3)	12 (100.0)
No (pre-menopausal)	31 (63.3)	18 (36.7)	49 (100.0)
	*Fisher's exact P = 0.083**		
Parity			
Para ≤ 3	25 (67.6)	12 (32.4)	37 (100.0)
Para > 3	17 (70.8)	7 (29.2)	24 (100.0)
	Chi-Square = 0.072; P = 0.788		
History of breastfeeding			
Yes	6 (46.2)	7 (53.8)	13 (100.0)
No	36 (75.0)	12 (25.0)	48 (100.0)
	*Fisher's exact P = 0.088**		
History of contraceptive use			
Yes	9 (75.0)	3 (25.0)	12 (100.0)
No	33 (67.3)	16 (32.7)	49 (100.0)
	Fisher's exact P = 0.737		
Known family history of breast cancer			
Yes	2 (66.7)	1 (33.3)	3 (100.0)
No	40 (69.0)	18 (31.0)	58 (100.0)
	Fisher's exact P = 1.000		
Side of affected breast			
Left	19 (67.9)	9 (32.1)	28 (100.0)
Right	22 (68.8)	10 (31.2)	32 (100.0)
Both	1 (100.0)	0 (0.0)	1 (100.0)
	Fisher's exact P = 1.000		
Breast asymmetry			
Yes	30 (78.9)	8 (21.1)	38 (100.0)
No	12 (52.2)	11 (47.8)	23 (100.0)
	*Chi-Square = 4.789; P = 0.029**		

**Statistically significant P<0.25*

Table 2 shows bivariate analysis of socio-demographic factors and late presentation among 61 breast cancer patients. Among the variables plotted against late presentation were: age category, attainment of menopause, parity, history of breastfeeding, history of contraceptive use, and known family history of breast cancer. There was significant association between age category, history of breast feeding, and late presentation of breast cancer in the bivariate analysis.

Table 3: Multivariate analysis of socio-demographic variables (P<0.25 on bivariate analysis) and late presentation of breast cancer

Variables*	Coefficient (B)	Odds ratio (OR)	95% CI	*P*
Age				
< 40years	1.522	4.58	1.15 – 18.21	0.031*
≥ 40years[R]		1	1	
Attainment of menopause				
Yes (Menopausal)	2.750	15.65	1.52 – 161.47	0.021*
No (Pre-menopausal)[R]		1	1	
History of breastfeeding				
Yes	1.173	3.23	0.73 – 14.49	0.125
No [R]		1	1	
Breast asymmetry				
Yes	1.321	3.75	1.01 – 13.88	0.048*
No [R]		1	1	

**Statistically significant P<0.05 R-Reference category; CI-Confidence interval*

Table 3 shows multivariate analysis of socio-demographic variables and hormonal uptake among family planning acceptors. Patients with breast cancer who are < 40years of age are 4.58 times higher odds (P-value = 0.031) of presenting late with breast cancer than those ≥ 40years. Also, patients who

have attained menopause have 15.65 times higher odds (P value = 0.021) of presenting late with breast cancer than the premenopausal patients. History of breast feeding that was initially significant using bivariate analysis faded into insignificance after multivariate analysis.

DISCUSSION

Breast cancer patients in developing countries are known to present late with advanced diseases[16]. A systematic review of Sub-Saharan African articles on breast cancer identified low knowledge of breast cancer, lack of awareness of early detection treatment, poor perception of breast cancer, socio-cultural factors such as belief, traditions and fear, as factors that negatively affect women health seeking behaviors[17]. Among other factors found to be significantly associated with delay in presentation in Morocco was the use of traditional methods[16]. Longer duration of symptoms has been found among the younger age group, minority ethnic group, and patients with low socioeconomic status[18]. In yet another study, indices of poor knowledge such as presence or absence of pain, and patients' perception of the disease as harmless and temporary, have been reported as important reasons for delay[16]. Association between multimorbidity and advanced breast cancer has also been reported[19].

Several studies have been conducted in Nigeria on breast cancer and factors associated with its clinical presentation[20-27]. Lower educational level and living in rural area, among others, were strongly associated with later stage disease[20]. The mean age at diagnosis is relatively younger for our patients with breast cancer compared with patient in the United States of America and Europe[28, 29]. Our finding is similar to studies on breast cancer in other parts of Nigeria[13, 20, 30], Africa[31-33], Arab nations[34] and China[28]. Menarche in our patients occur at older age compared with their western counterparts[35-38]. Most of our patients with breast cancer are multiparous. The onset of menopause among our patients is at a relatively younger mean age of 50.4±3.5years compared to western society. However, it is similar to the findings in studies carried out in other parts of Nigeria[21, 26, 27, 39].

Most of the patients present to healthcare facilities for treatment at advanced stages of the disease. A similar finding has been reported in studies from other centers in Nigeria[20-27] and other African countries[3-5]. Advanced stage presentation of breast cancer has also been reported in the Asian[40, 41],

though it varies in some regions[42, 43]. However, the finding of presentation in late stage disease differs from report from developed western societies[29, 44].

After inputting the sociodemographic variables in bivariate analysis, four of them (parity, history of contraceptive use, known family history of breast cancer, and side of the breast) were found to have no significant association with late presentation. History of breastfeeding was however further excluded by multivariate analysis which found significant relationship between some of the socio-demographic variables (<40years of age, attainment of menopause, and breast asymmetry) and late presentation of breast cancer patients since they all have higher odds of presenting late with breast cancer than their counterparts. A study which focused on determinants of diagnostic delay found patients' age as significant factor, hence has some similarity with our study[11]. However, it differs from ours partially since we did not investigate patients' education, and hence did not find it significant. Some other studies also found age as a significant index of late presentation of breast cancer[18, 45]. However, a study carried out in Nigeria reported that age at diagnosis, tumor grade and estrogen receptor status were not strongly associated with late stage presentation[20].

Our study showed that attainment of menopause is a significant correlate of late presentation. Late breast cancer presentation has been reported among pre- and post-menopausal breast cancer patients[46-48]. Breast asymmetry, in our study, is a correlate of late presentation. Likely explanation for this could be that already existing asymmetry of the breast had contributed to recognition of the existence of an anomaly in that breast. There have been reports of delayed diagnosis of breast cancer following unconfirmed asymmetrical mammographic features and other issues[49-53] but we could not find one detailing late presentation due to breast asymmetry.

LIMITATION

The limitations of this study are limited number of breast cancer cases and the convenience sampling method used.

CONCLUSION

Our study showed that there is significant relationship between some of the socio-demographic variables (<40years of age, attainment of menopause, and breast asymmetry) and late presentation of breast cancer patients since they all have higher odds of presenting late with breast cancer than their counterparts. Breast cancer occur among patients with relatively younger age than their western counterpart, and most of them are multiparous.

Conflict of Interest: The authors have declared none

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