# Demographic Characteristics and Review of Patients with Locally Advanced Breast Cancer in Sudan.

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## ABSTRACT

**Background:** *In Sudan, breast cancer is one of the most common malignancy affecting women and the incidence rates appear to be rising. Unfortunately, most of the patients present in advanced stage.*

**Objective:** *To obtain information on demographic characteristics, clinicopathological profile and factors related to late presentation.*

**Patients and Method:** *This is a cross sectional study of female patients who presented with locally advanced breast cancer at National Cancer Institute, Sudan from April 2009 through May 2011.*

**Results:** *A total of 144 patients ranging in age from 25 - 71 years (mean 47 years) were included in the study. Of these 62.5% were premenopausal women. More than 60% of the patients presented after >1 year following onset of symptoms. Sixty-eight per cent of patients attributed their late presentation to lack of education and funds.*

**Conclusion:** *Our study shows that locally advanced breast cancer patients presented at a younger age. Lack of education, financial issues and dependency on traditional medicine accounted for late presentation. We suggest that the attitude of Sudanese females towards breast cancer has to change through continuous and targeted public education.*

*Keywords: Locally advanced breast cancer; Clinicopathological profile; late presentation.*

## INTRODUCTION

Breast cancer is a worldwide disease resulting in many deaths. Although breast cancer incidence is lower in Sub-Saharan African countries than in developed countries, African women are more likely than women in the developed world to present at later stages of the disease and, thus, are more likely to die from it[1]. This may be due to the lack of awareness by women, accessibility to screening methods, and availability of African-based research findings that would influence decision making at the governmental level.

Breast cancer in African women is characterized by younger age at onset, advanced stage at diagnosis, and consequently poor prognosis. For example, in Nigeria, about two-third of women with breast cancer present with advanced stage disease. The reason for these unfavorable breast cancer presentations is reported to be the delay by patients presenting to the hospitals, due to ignorance, superstition, a poor attitude towards western medicine, and dependency on traditional medicine[2].

While locally advanced breast cancer (LABC) is an unusual presentation among women in the western world, in Sudan, this stage is not only common but it also affects women at a much younger age[1].

This descriptive study was undertaken to shed light on the type, age distribution, clinicopathological profile and factors responsible for late presentation of Sudanese patients diagnosed with locally advanced breast cancer.

## PATIENTS AND METHODS

This is a cross sectional, descriptive study of locally advanced breast cancer in patients who attended the combined breast clinic in National Cancer Institute, Wad Medani city, Sudan in April 2009 through May 2011.

Demographic details, clinical presentation, duration of symptoms at initial diagnosis and histopathological findings of all patients were entered into our study protocol.

Histopathological findings included tumor type, tumor grade, estrogen receptor (ER) status and progesterone receptor (PR) status.

The AJCC Tumor, Node and Metastasis (TNM) tumor classification and cancer staging system[3] was used in this study. In the TNM staging classification, LABC is represented by stage IIIA (T0-N2; T1/2 - N2; T3 - N1/2), stage IIIB (T4, N0-2), and stage IIIC disease (any T, N3).

Statistical analysis was done using Statistical Package for Social Sciences version 17 (IBM; SPSS, Chicago, IL, USA). All summary statistics are stated within 95% confidence limits. A method appropriate for small samples was applied to the percentages and odds ratios were derived using logistic regression methods.

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## RESULTS

A total of 150 patients were seen over the 2-year period, of which 6 patients whose data (age, sex, duration of symptoms and pathology) were incomplete were excluded from the study.

Of the 144 patients in our study, the mean age of females with breast cancer was 47 years and the age ranged from 25 to 71 years. The median age was 46 years and mode was 33 years. Peak age of incidence was 40-49 years followed by 50-59 years (Fig 1). One hundred and thirty four (95%) patients were married and 10 (5%) were single. Two thirds of the patients (62.5%) were premenopausal, and 37.5% were postmenopausal.

**Figure 1: Age distribution of locally advanced breast cancer  (N = 144).**
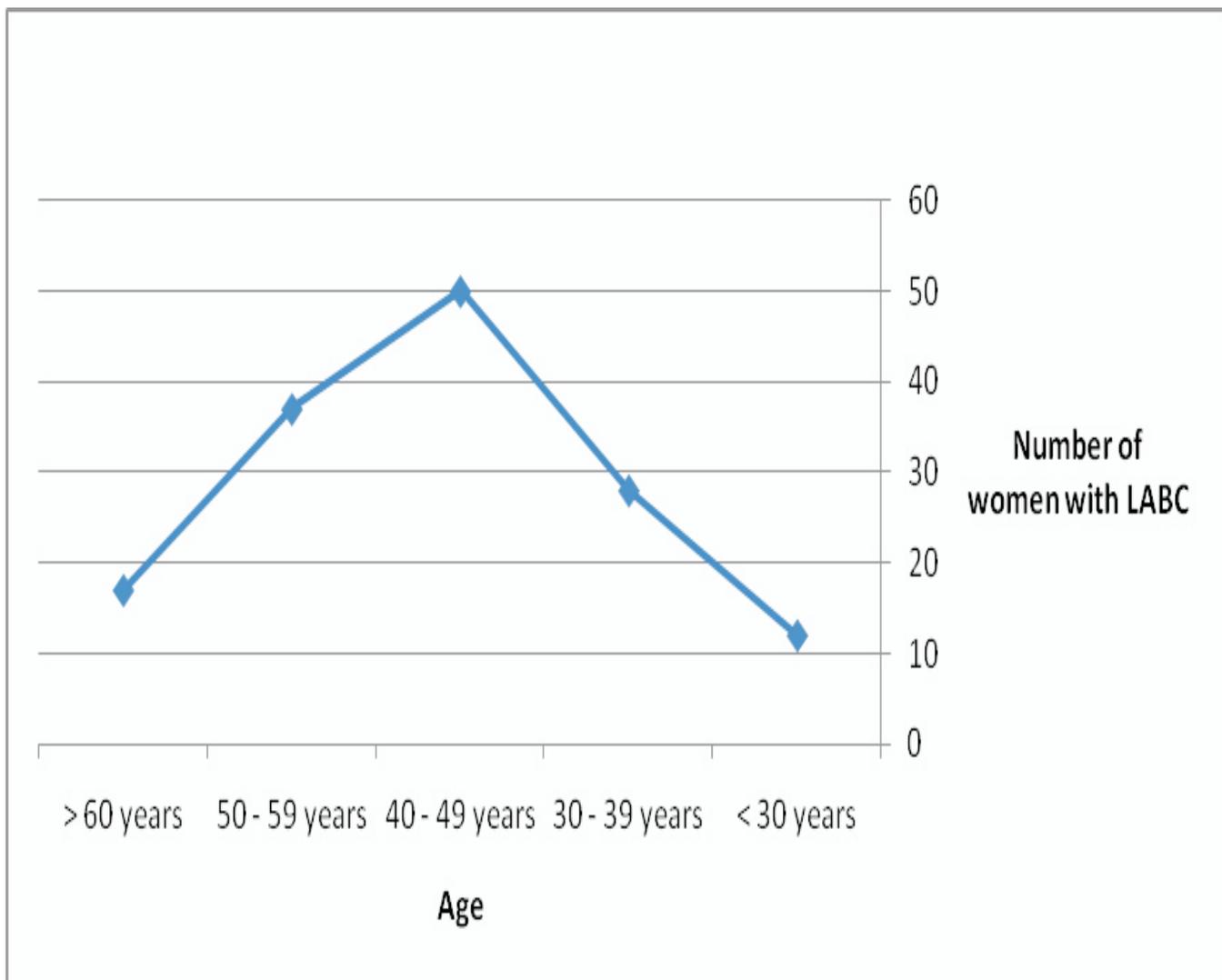


Geographically, 80 (55.6%) patients were from the urban area and 64 (44.4%) from rural area. The distribution for stage III a, III b and III c was 13.2%, 78.5% and 8.3% respectively (Table 1).

The time interval between the onset of breast-related symptoms to diagnosis varied from 2-108 (median 12) months. One third of patients had resorted to traditional medicine as their first choice of treatment. Ninety seven per cent of patients had positive lymph node involvement; 7% of those had supraclavicular lymph node involvement (Table 1).

**Table 1:  Patient and tumor characteristics for total population (n = 144)**

| Parameter | Total population | |
|---|---|---|
| | **Number** | **Percentage** |
| **Age** | | |
| Median | 47 | |
| **Tumor stage** | | |
| III a | 19 | (13.2 %) |
| III b | 113 | (78.5 %) |
| III c | 12 | (8.3 %) |
| **Nodal stage** | | |
| N0 | 4 | (2.8%) |
| N1 | 33 | (22.9%) |
| N2 | 97 | (67.4%) |
| N3 | 10 | (6.9%) |
| **Tumor grade** | | |
| G1 | 3 | (2.1%) |
| G2 | 29 | (20.1%) |
| G3 | 112 | (77.8%) |
| **ER status** | | |
| +ve | 101 | (70.1%) |
| -ve | 43 | (29.9%) |

**Table 2:   Factor that related for late presentation in patients with locally advanced breast cancer (N = 144).**

| Factors | Number | Percentage |
|---|---|---|
| Lack of Education | 57 | 39.5% |
| Limited access to medical care | 13 | 9% |
| Ignorance | 10 | 6.9% |
| Dependency on traditional medicine | 20 | 13.8% |
| Fear of being perceived as a burden to relatives | 4 | 2.7% |
| Financial aspects | 40 | 28.6% |

Radiologic imaging (mammography /ultrasonography or both) was undertaken with 84% of patients. Vast Majority (77.1%) of patients had Invasive ductal Carcinoma. Only 15.3% had Invasive Lobular carcinoma, 5.6% had mucinous carcinoma and 2.1% had tubular carcinoma. Tumor grade was recorded thus: 2.1% (3) were Grade 1, 20.1% (29) were Grade 2 and 77.8% (112) were Grade 3(Table 1).

ER and PR positive tumor contents were demonstrated in 101 (70.1%) and 79 (54.4%) respectively of 144 specimens examined; the ER+/PR+ phenotype being recorded in 32.6% of the studied cases, while the ER-/PR- variant was displayed in 7.6%. Approximately 70% of postmenopausal breast cancers were ER+ ($P < 0.05$). Poorly differentiated carcinomas exhibited ER+ and PR+ phenotypes in 47.1% and 29.6% respectively ($P < 0.05$).

Majority of the patients attributed their late Presentation to lack of education (see Table 2).

**DISCUSSION**
In Sudan, breast cancer is a neglected disease. Information on cancer is limited by the lack of a cancer registry and local evidence-based research. In our study, 55.6% of the cases were from urban areas, which are densely populated and where there is better access

to healthcare facilities and better health-seeking behavior than the rural areas. This geographic disparity between urban and rural populaces is consistent with the literature, which has documented reasons for these disparities[4]. Our study cannot completely reflect the true distribution of the disease in Sudan because it was carried out at a tertiary hospital.

In developed countries, locally advanced breast cancer is common in older women[5]. More than 60% of patients in our study were premenopausal, similar to reports from Nigeria and other developing countries[6-8]. The incidence of breast cancer typically increases with age and it is uncommon in patients <40 years old. In the white population the incidence is <0.5% in patients <40 years old[7]. In our study 31.2% of cases were <40 years old. Thus, our results indicate that in Sudan, locally advanced breast cancer is a disease of younger, mainly premenopausal women.

In developing and resource-poor countries, women with breast cancer present very late in the course of the disease[6,8] despite symptoms being easily identifiable during routine self-examination. A large study was carried out in 2006 to assess the burden of breast cancer in Sudan[1]. It concluded that the majority (88.2% out of 1225) of women presented with Stage III or higher tumors. In our study >60% of patients sought consultation >1 year after noticing symptoms. These findings may be attributable to the fact that patients ignore symptoms and do not access medical care at an early date. In our study, lack of education, a dependency on traditional medicine and financial aspects of undergoing testing and treatment are the most important factors that play a role in prolonging the patients' decision to seek medical treatment.

Pathologically, in accordance with the results of another cancer registry[9], the leading tumor type was infiltrative ductal carcinomas (77.1%). The higher frequencies of hormone receptor (HR) positive breast carcinomas among Sudanese patients that was reported in this study (70.1%),compared to those observed in more-developed countries[10-12] , are not expected in a population of predominantly middle-aged patients harboring considerable rates of poorly-differentiated carcinomas.

## CONCLUSION
In conclusion, the expanding burden of breast cancer in Sudan, justifies the demand for establishing comprehensive national cancer control programmes. Early detection of breast cancer, as a major approach to controlling the disease, could be achieved by raising the awareness of the general population about its symptoms and signs, educating health personnel, and ensuring the provision of readily accessible diagnostic services. The illustrated high frequencies of poorly differentiated and ER-/PR- phenotypes, as objective biological markers of tumor aggressiveness, emphasize the urgent need for initiating comprehensive clinical, interventional and molecular research studies.

## CONFLICT OF INTEREST AND FUNDING

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