

Breast Cancer in Women Under 40 Years of Age Surgical Oncology Unit of Donka National Hospital a Retrospective Cohort Study

Malick Bah^{1,*}, Keita Mamady², Touré Alhassane Ismael², Cisse Kalil², Souare Mamadou Bobo², Conde Ibrahima Kalil², Traore Bangaly²

¹Donka Surgical Oncology Unit, Faculty of Health Sciences and Technology, Gamal Abdel Nasser University, Conakry, Guinea

²Surgical Oncology Unit, Donka National Hospital, Conakry, Guinea

Email address:

lickmadem@yahoo.fr (Malick Bah), mamadykeita@rocketmail.com (Keita Mamady), tourealhassane@yahoo.fr (Touré Alhassane Ismael), mbobosouare@gmail.com (Souaré Mamadou Bobo), condekalil1800@gmail.com (Condé Ibrahima Kalil), ucodonka@gmail.com (Traoré Bangaly)

*Corresponding author

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Abstract: *Objective:* To describe the epidemiological, clinical, therapeutic and prognostic aspects of breast cancer in women aged 40 years and younger. *Material and methods:* This was a retrospective descriptive cohort of 128 months, from April 11, 2007, to December 31, 2017; including patients aged 40 years and younger who had been treated and followed up for breast cancer at the surgical oncology unit of the Donka CHU National Hospital in Conakry. *Results:* A total of 184 patients were enrolled in this study. The mean age was 33.5 ± 5.4 years. A family history of breast cancer was found in 16 (8.69%) patients. The presence of nodule was the most frequent symptom (91.3%). It was an infiltrating ductal carcinoma in 67.3% of patients. Stages IIIB, IV, and IIIA were the most frequent with 40.2%, 23.3% and 9.2% respectively. Mastectomy was radical in 93.9% of the cases. The associated treatments were chemotherapy (86.4%), radiotherapy (15.7%) and hormone therapy (2.7%). We recorded 79 (42.9%) deaths. Overall survival at 5 years was 31%. *Conclusion:* Breast cancer in young women remains serious because of its high frequency, more progressive form, and poorer prognosis compared with that of older patients.

Keywords: Breast Cancer, Young Women, Conakry

1. Introduction

Breast cancer is a major public health problem; it ranks 1st among female cancers and is the most frequent cause of cancer-related death in women. [1]. In Guinea, breast cancer ranked 4th among cancers in 2018, with 605 new cases [1].

According to most authors, breast cancer in very young women has its own epidemiological, diagnostic and prognostic characteristics. Genetic predisposition and, above all, a less favourable local and general prognosis than in post-menopausal women, have been reported in the literature. [2, 3].

Breast cancer remains essentially a disease of

post-menopausal women, despite its growing incidence worldwide, rarely affecting women between the ages of 30 and 40. Because of the major medical and emotional issues involved in its diagnosis, this cancer remains a particular problem in young women. [4]. In women under 40, it accounts for 30% of female cancers diagnosed worldwide, with an incidence of 191,000 new cases each year [5]. In France, around 5% of new cases of breast cancer are diagnosed in women under 40. [6]. Women in Africa develop breast cancer at a young age, with the average age in West Africa between 35 and 45, 10 to 15 years earlier than women in developed countries. [5, 7].

A significant proportion of breast cancers diagnosed before the age of 40 are thought to be linked to genetic factors such as

mutations in the antigenic receptors for breast cancer (BRCA) 1 and 2 [5].

Younger age is associated with more aggressive breast cancer characteristics, with a higher rate of grade III tumors, triple-negative tumors, a greater frequency of lymph node invasion and a significantly higher risk of recurrence, both locally and at a distance, making breast cancer in young women cancer with a worse prognosis [8, 9].

Late diagnosis of breast cancer is associated with lower survival rates. Early diagnosis, therefore, offers a better chance of cure [10, 11]. However, the majority of patients in Africa present with advanced stages of breast cancer [7].

It is therefore important to identify preventive measures that are effective in reducing mortality from this cause of disease. The only preventive tool that has so far proved effective in reducing breast cancer mortality is mammography screening, which is usually carried out in women aged 50-74 [8, 12].

Faced with this problem throughout the world, and particularly in Guinea, we initiated this study, the aim of which was to describe the epidemiological-clinical, therapeutic and prognostic aspects of breast cancer in women aged 40 and under.

2. Materials and Methods

This was a retrospective cohort covering 10 years and 8 months, from 11 April 2007 to 31 December 2017, carried out at the surgical oncology unit of the Donka National Hospital, involving all patients aged 40 and under with histologically confirmed breast cancer.

We described the epidemiological aspects (age, marital status, socio-occupational categories, origin, history of cancer), the clinical data (mode of discovery, physical signs) and the results of the Para clinical examinations (histology, mammography, ultrasound, X-ray, CT scan). The TNM classification of breast cancer was notified.

The different types of treatment were listed. In the case of surgery, the curative or palliative aim and the type of surgical removal were specified. Associated treatments were reported.

The data were analyzed using SPSS 21.0 software. Categorical variables were calculated in terms of frequency or percentage and quantitative variables were analyzed as mean (\pm standard deviation) or median with interquartile range (IQR). Survival was calculated using the Kaplan-Meier method. The Log Rank test was used to compare differences in survival and recurrence. The test was significant if the p-value was less than 0.05.

The work has been reported in line with the STROCSS criteria [13].

3. Results

We compiled 607 records of patients with histologically confirmed breast cancer; 184 of these patients were aged 40 and under, representing 30% of the total number of patients with breast cancer at that time.

The mean age of the patients was 33.5 ± 5.4 years, with

extremes of 16 and 40 years. The most common age group was 30 to 39, with 64% of cases.

They were married in 144 (78.3%) and housewives in 79 (44.6%) cases. A family history of breast cancer was found in 16 (8.69%) cases, including 12 cases on the 1st degree and 4 on the 2nd degree. In 142 patients, the age at menarche was 12 years or younger in 98 (53.26%). They were weak gestures and multi-gestures in 52 (29.5%) and 41 (23.3%) cases respectively, and three of them were menopausal at the time of diagnosis. The use of oral contraceptives was reported in 28 (15.2%) patients. Comorbidities were found in 26 (14.1%) patients; HIV was found in 16 (8.7%) patients, hypertension and diabetes in 6 (3.3%) and 4 (2.1%) patients respectively. (Table 1)

Table 1. Socio-demographic characteristics and history of patients.

Features	Workforce	Percentages
Age range		
10-19	5	2,7
20-29	36	19,5
30-39	118	64
40	25	13
Family history of cancer		
Yes	16	8,6
No	168	91,3
Number of full-term pregnancies		
Zero Gesture	27	14,6
Primigesture	28	15,2
Pauciest	52	28,2
Multigesture	41	22,2
Large multigesture	28	15,2
Age of 1st period		
≤ 12 years	98	53,2
> 12 years	44	23,9
Not specified	42	22,8
Menopause		
Yes	3	1,6
No	181	98,3
Oral contraception		
Yes	28	15,2
No	156	84,7
Co-morbidities		
HPB	6	3,2
HIV	16	8,6
Diabetes	4	2,1

HPB: High blood Pression, HIV: human immunodeficiency virus

Breast cancer was discovered in 157 (85.32%) patients by functional symptoms, while only 22 (11.95%) cases were discovered by systematic examination. The presence of a nodule was the most frequent symptom in 168 cases (91.3%).

Examination of the breasts revealed a predominance of left breast involvement in 98 (53.2%) patients, with bilateral involvement in 2 (1.0%) cases. Axillary adenopathy was present in 145 (78.8%) cases and supraclavicular adenopathy in 23 (12.5%); only 3 (1.6%) cases had contralateral adenopathy (Table 2).

Mammography was carried out on 53 (28.88%) patients and revealed suspicious lesions in 47 (88.6%) cases, while breast ultrasound revealed suspicious lesions in 22 of the 29 patients who underwent it.

The histological type was specified for all patients; infiltrating ductal carcinoma (IDC) was the most predominant with 124 (67.39%) cases, followed by SAI carcinoma 33 (17.93%). Breast cancer was grade SBR II in 57 of the 79 cases reported.

Among the 13 patients who underwent immunohistochemistry, hormone receptors were positive in 6 patients and the Her2 oncogene was overexpressed in 2

patients. Breast cancer was triple negative in 6 cases (46.2%).

The tumor marker CA 15.3 was measured in 74 (40.2%) patients, 24 (32.4%) of whom had values higher than the normal 30 IU/ml.

Determined in 152 (82%) patients, TNM stages IIIB, IV and IIIA were the most frequent, with 61 (40.1%), 36 (23.6%) and 15 (9.8%) cases respectively (Table 2).

Table 2. Anatomical and clinical presentation of patients.

Features	Number of employees (n)	Percentage (%)
Laterality		
Left	98	53,2
Right	84	45,6
Bilateral	2	1,0
Involvement of lymph nodes		
Axillary	145	78,8
Sus clavicular	23	12,5
Contralatéral	3	1,6
Not specified	13	7,6
TNM stages (N=150)		
II B	14	9,2
III A	15	9,8
III B	61	40,1
IV	36	23,6
Histological types		
Non-invasive carcinoma	15	8,15
IDC	124	67,39
ILC	8	4,34
Inflammatory carcinoma	2	1,08
SAI carcinoma	33	17,93
Other	3	1,6
Grade SBR		
I	2	1,08
II	57	30,97
III	20	10,86
Tumour biology		
Luminal A	3	23,1
Luminal B	1	7,7
Her2	2	15,4
Triple-negative	6	46,2
Unclassifiable	1	7,7
Ca15.3		
High	24	13,0
Not high	50	27,2

IDC: invasive ductal carcinoma; ILC: Invasive lobular carcinoma

Surgical treatment was carried out in 82 (44.5%) cases, including 77 cases of radical breast surgery, 3 cases of conservative breast surgery and 2 cases of clean mastectomy.

Breast surgery was accompanied by chemotherapy in 159 (86.4%) patients, including 113 neoadjuvant cases and 46

adjuvant cases (Table 3).

Twenty-nine (15.7%) patients received radiotherapy outside the country. Hormone therapy was administered to 5 (2.7%) patients, including 4 on Tamoxifen and one on Anastrozole + Tamoxifen.

Table 3. Breakdown of patients according to treatments received.

Features	Number of employees (n)	Percentage (%)
Surgery		
Yes	82	44,56
No	102	55,43
Type of surgery		
Conservative breast surgery	3	1,63
Radical breast surgery	77	41,84
Cleansing mastectomy	2	1,08
Lymph node removal		
Yes	76	41,30

Features	Number of employees (n)	Percentage (%)
No	6	3,26
Chemotherapy		
Yes	125	67,93
No	59	32,09
Type of chemotherapy		
Neoadjuvant	113	61,41
Adjuvant	46	25
Radiotherapy		
Yes	29	42,6
No	39	57,4
Hormone therapy		
Yes	5	2,71
Tamoxifen	4	2,17
Anastrozole+Tamoxifen	1	0,54

At last count, 105 (57.0) patients were alive and 79 (42.9%) had died. Overall survival at 5 years was 31%. Survival ranged

from 10 to 72% with or without recurrence, with a significant difference ($p < 0.001$) (Figure 1).

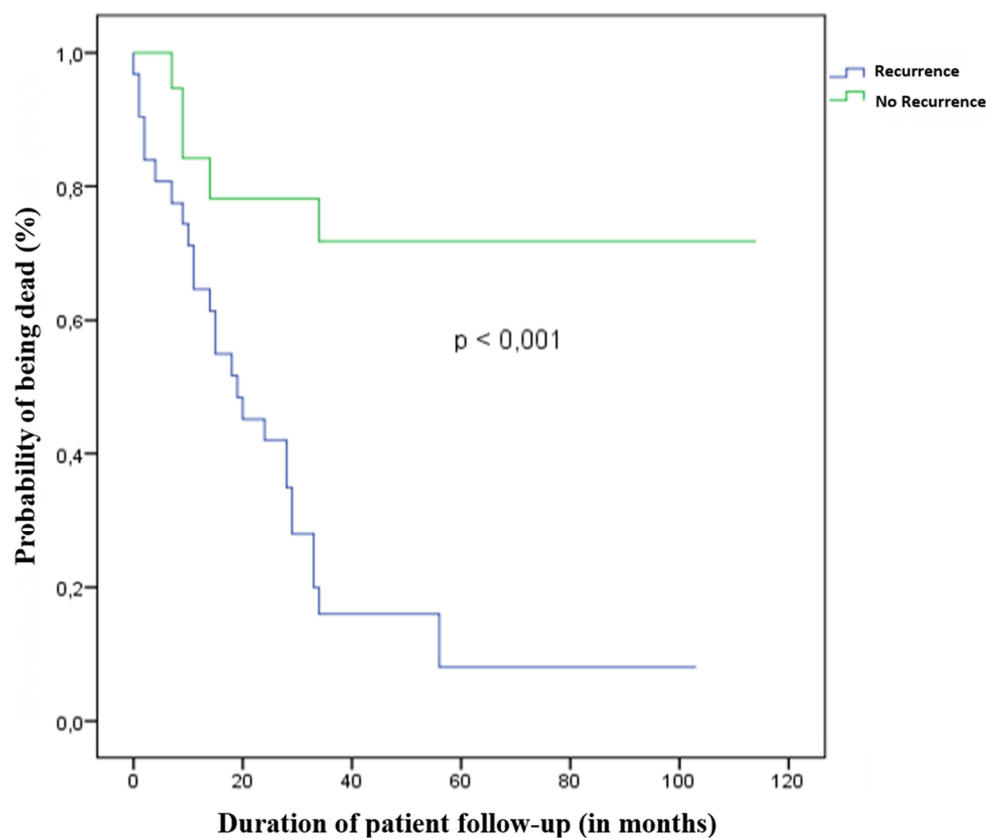


Figure 1. Patient survival according to recurrence.

4. Discussion

The frequency of 30% found in our study is similar to that reported by GUEYE *et al* in Senegal [14] unlike in industrialized countries where it remains low [6, 9, 15, 16]. Breast cancers diagnosed before the age of 40 represent only 7% of all breast cancers but are nevertheless the most common cancers in women in this age group [15, 17]. The predominance of the young population in African society could explain this difference.

The incidence of breast cancer in younger women differs according to race. Overall, breast cancer is more common in

Caucasian women than in African-American women; however, in women under the age of 35, breast cancer is more than twice as common in African-American women. [12, 15].

Family history is a risk factor for the development of breast cancer, with an 80% increase in risk if there is a first-degree history, a threefold increase if there are two first-degree histories and a fourfold increase if there are three or more. [15, 18]. In our series, only 8.69% had a family history of cancer, 3/4 of them in the 1^{er} degree.

As breast cancer is a hormone-dependent disease, hormonal factors constitute a risk of occurrence, particularly via estrogens. Menstruating before the age of 12 increases the risk of breast cancer in adulthood through more prolonged

exposure to estrogens. Taking oral contraception leads to a minimal increase in risk in young women after prolonged use. [18]. In our series, more than half the patients had had their menarche before the age of 12 and only 15.2% had used oral contraception.

The mean age of 33.9 years in our study is in line with the literature [8, 19].

As systematic screening mammography is not aimed at these patients, the reason for consultation is most often the palpation of nodule or a change in the appearance of the breast [9, 13, 20].

The stages were locally advanced in half of cases, with associated lymph node involvement in 3/4 of cases, and metastatic in 1/4 of cases. Our results are similar to those of many authors in Africa [13, 20].

The sensitivity of mammography is low in younger women due to increased breast density, which obscures the results. As a result, it is not clinically beneficial or cost-effective in assessing breast symptoms in this population. Ultrasound, on the other hand, is a more sensitive imaging tool in young women and has the added advantage of distinguishing solid masses from simple and complex cysts [12].

In our study, infiltrating ductal carcinoma remains the most common, as reported in the literature [9, 13, 20]. The characteristics of tumors in young women differ from those in pre-menopausal women aged over 35. Indeed, younger women have a lower rate of ductal carcinoma *in situ* (women in this age group generally do not have screening mammography) and are more likely to be of a higher histological grade [12]. The immunohistochemically study of the samples is carried out abroad, due to the absence of an equipped laboratory on site, which poses the problem of the additional cost of transporting the samples. In our study, only 13 patients out of 184 were able to benefit, half of whom were triple-negative. Triple-negative tumors (absence of estrogen and progesterone receptors and HER2 negative) are more frequently observed in these young patients; young age is associated with more aggressive characteristics, making breast cancer in young women cancer with a worse prognosis. [8, 9].

The principles of management of invasive breast cancer in young women are the same as in older women. Local therapy options include mastectomy or breast-conserving surgery followed by radiotherapy. In addition to appropriate radiotherapy, adjuvant chemotherapy and/or hormonal therapy should be strongly considered. [12,15].

In our series, radical breast surgery was the most common procedure, given the advanced stage of the disease. Only 3.8% of patients treated surgically underwent conservative treatment. These data are consistent with those reported by GUENDOUZ et al [19].

Chemotherapy is currently the standard treatment and involves the prescription of anthracycline and a taxane for 6 to 8 cycles. [9]. In our study, chemotherapy enabled surgery to be performed in 86.4% of cases. As radiotherapy is not available in our country, patients with the financial means to undergo it went abroad, which explains its low rate of use.

Young women with hormone-sensitive tumors should be

offered hormonal therapy with Tamoxifen as the usual treatment, but ovarian suppression/ablation (with LH-RH analogues, oophorectomy or ovarian radiation) may be used as an alternative or added in combination with Tamoxifen. [12].

The prognosis was poor, with high mortality. The 5-year survival of 31% in our study (Figure 1) contrasts with that reported in France, which was 90%. [6]. The delay in diagnosis in our context, combined with the high cost of treatment, could explain this difference.

5. Conclusion

Breast cancer in young women is a serious disease, due to its high frequency, more progressive form and poorer prognosis than in older patients.

It remains a major and growing public health problem due to delayed diagnosis, high histological grade, often hormone-receptor negative, more frequent recurrence and poor overall survival.

This work has shown that it is essential to determine molecular subtypes, given the high frequency of triple-negative and sometimes HER2-type tumors.

Treatment is based on a combination of chemotherapy, surgery, radiotherapy and hormonal therapy, to improve the quality of treatment and prognosis.

Conflict of Interest

We declare no conflict of interest in relation to this article.

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