Journal of Cancer Therapy, 2017, 8, 714-725
http://www.scirp.org/journal/jct
ISSN Online: 2151-1942
ISSN Print: 2151-1934

Breast Cancers in Young Woman under 40 Years in Sub-Saharan Africa: Experience of the Gynecology Department of the University and Hospital Center of Treichville (Abidjan—Cote d'Ivoire)

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How to cite this paper: Dia, J.M., Touré, M., Yao, I., Bohoussou, E., Saki, C., Oyelade, M., Okon, G., Guié, P. and Anongba, S. (2017) Breast Cancers in Young Woman under 40 Years in Sub-Saharan Africa: Experience of the Gynecology Department of the University and Hospital Center of Treichville (Abidjan—Cote d'Ivoire). *Journal of Cancer Therapy*, **8**, 714-725.
https://doi.org/10.4236/jct.2017.88062

Received: June 13, 2017
Accepted: July 31, 2017
Published: August 3, 2017

Abstract

Objective: To describe the epidemiological, clinical and therapeutic characteristics of women under 40 years followed for breast cancer. **Method:** This is a retrospective and cohort study with descriptive purpose conducted over 10 years on the management of breast cancer in 105 patients under 40 years in the Gynecology Service of the University and Hospital Center of Treichville. **Results:** The incidence of breast cancer in women under 40 years was 8.4%, and the majority of patients were over 35 years old (64.8%) and had a low socioeconomic level (61.7%). Some patients had classic risk factors for breast cancer: menarche before 12 years (48.6%), nulliparity (20%), family history of breast cancer (1.9%). The discovery of a breast abnormality was made by patients in 97.1% of the cases. Cancers were either isolated (92.4%) or associated with pregnancy (5.7%) or bilateral (1.9%). The majority of cancers were infiltrating ductal carcinomas (86.7%), of SBR II grade (69%). Patients generally benefited from a mastectomy with axillary dissection, framed by chemotherapy. The global survival at 10 years was 5%. **Conclusion:** This study allowed us to confirm that breast cancers in younger women were a reality in our country and posed us enormous difficulties in their management.

Keywords

Breast Cancer, Young Women, Diagnosis, Treatment

1. Introduction

Breast cancer, first cancer of women worldwide typically affects patients over 40 years. Its occurrence in younger women poses particular problems in the management.

Indeed in young women, breast cancer is often unexpected delaying the diagnosis, and must justify the search for a familial form of this cancer. Moreover, it is recognized in the literature that the prognosis of breast cancer in young women is generally worse than in older women [1] [2] [3]. Finally, breast, a major symbol of femininity, makes treatment (especially surgery) in these young women difficult to accept or even rejected [4] [5]. Thus, in developed countries, different therapeutic strategies are proposed, in particular conservative surgery, a preservation of ovarian function and a prophylactic treatment in high-risk women.

In our developing countries, where the technical equipment is often limited, breast cancer in women under 40 is a reality but has been the subject of few publications

Therefore we conducted this study with the aim of describing the epidemiological, clinical and therapeutic characteristics of women under 40 years followed for breast cancer in our service.

2. Patients and Methods

We conducted a retrospective and cohort study with descriptive purpose over 10 years (1st January 2005-31st December 2015) in the gynecology department of the University and Hospital Center of Treichville (CHUT) on the women followed for breast cancer.

The diagnosis of breast cancer was retained after histological confirmation on the biopsy parts. The immunohistochemical examination (IHC) was not feasible in our country during the study period, but it could be done in other countries if the patient had the means to ensure the cost. An extension report containing at least a general clinical examination and an abdominopelvic CT scan was systematically performed, allowing the choice of the therapeutic strategy. The therapeutic possibilities available in our department were surgery, chemotherapy and hormone therapy. Chemotherapy and hormone therapy were conducted according to their conventional indication. As for surgery, conservative treatment was possible if it was supplemented by radiotherapy (available in other countries) in patients with tumors less than 2 cm long, non-metastatic. In the contrary cases, a mastectomy according to Patey was systematically indicated in case of non-metastatic invasive cancers. In addition to the impossibility of sampling the sentinel lymph nodes, axillary dissection systematically completed the surgical procedure when the tumors were at an invasive stage Were included all the patients under 40 years who were treated in our departement for breast cancer (histologically confirmed) during the study period. We excluded patients who did not have correcly updated medical records.

A standardized questionnaire made it possible to collect the variables from the patient files, and from the different registers (chemotherapy, operative reports, anatomopathological results). The data were analyzed using Word, Excel, epi info, and calculations of averages and frequencies.

The parameters studied were epidemiological, clinical, therapeutic characteristics and patients survival (evaluated from the date of diagnosis confirmation by Kaplan Meier's method).

3. Results

3.1. Epidemiological Characteristics

- **Frequency**

During the study period we diagnosed 1830 cases of breast cancers including 153 patients under the age of 40, an incidence of 8.4%. Out of these 153 patients, 105 (68.6%) met our inclusion criteria and were therefore selected for this study.

- **Socio-demographic characteristics**

o **Age of patients.**

The average age of the patients was 38.9 years (28 - 39 years), and among them, 7.6% were under 30 years of age, 27.6% were between 30 and 35 years of age, and 64.8% were over 35 years of age.

o **Socio-economic level.**

Some patients were not attending school (10.5%), while the others had primary (15.2%), secondary (33.3%) or higher (41%) education level. In addition, 61.7% of the patients had no monthly income.

- **History of patients**

Several patients had risk factors for breast cancer: menarche before 12 years (48.6%), nulliparity (20%), history of hormonal contraceptives (11.4%), personal history of breast disorders (7.6%), family history of breast cancer (1.9%) (Table 1)

3.2. Clinical Characteristics

- **Discovery circumstances**

The breast abnormality was discored by the patients themselves in 97.1% of the cases (102 patients), and in the other cases in a routine medical examination (3 patients).

o **First signs of alarm**

The first sign in the breast that took the 102 patients to consult was : nodule (85%), mastodynia (8%), skin abnormality (5%) and mammalian flow (2%).

o **Delays between the discovery of the first sign and the first consultation.**

The average time between the discovery of the first sign and the first visit was 7.3 months (2 weeks - 18 months). This was less than 1 month in 8 patients (7.6%), 1 to 3 months in 14 patients (13.3%), 3 months to 6 months in 23 patients (21.9%) and more 6 months in 60 patients (57.2%).

- **The clinical forms.**

Table 1. Distribution of patients according to their history.

History	Population	Frequency (%)
Menarche		
- <12 years	51	48.6
- >12 years	54	51.4
- Total	105	100.0
Parity		
- 0	21	20
- I - II	35	33.3
- >III	49	46.7
- Total	105	100.0
Hormonal contraceptive		
- Yes	12	11.4
- No	93	88.6
- Total	105	100.0
Personal History of breast pathology		
- Yes	8	7.6
- No	97	92.4
- Total	105	100.0
Family history of breast cancer		
- Yes	2	1.9
- No	103	98.1
- Total	105	100.0

Cancers were isolated in 97 patients (92.4%), associated to a pregnancy in 6 patients (5.7%), and bilateral in 2 patients (1.9%) (Table 2). The inflammatory forms were discovered in 16 patients including the 2 bilateral forms (Figure 1).

Cancers during pregnancy were discovered at different times : first trimester (3 patients), second trimester (2 patients) and third trimester (1 patient).

- **Clinical stage**

93 patients (88.6%) had a tumor at a locally advanced stage (stage T3 and T4), and 52 patients (49.5%) had axillary lymph nodes (N1 and N2). In addition, 16 patients had an acute inflammatory cancer (PeV) (Table 3).

- **Histological characteristics**

o **Histological type**

Cancers were infiltrating ductal carcinomas (86.5%), infiltrating lobular carcinomas (11.6%) and sarcomas (1.9%).

o **Histological prognostic factors.**

5 patients (4.8%) had SBR I grade tumors, 72 patients, SBR II (68.6%) grade tumors and 28 patients, SBR III (26.6%) grade tumors.

The other prognosis factors (RH - Ki 67 - HER2) were explored in only 11

Figure 1. Inflammatory bilateral breast cancer in a 36-year-old female patient.

Table 2. Distribution of patients according to the clinical forms.

Clinical forms	Population	Frequency (%)
Isolated		
- Nodule	85	81
- Inflammatory	12	11.4
Associated with pregnancy		
- Nodule	4	3.8
- Inflammatory	2	1.9
Bilateral	2	1.9
Total	105	100

patients (10.5%). Hormonal receptors and HER2 were negative in all these patients while the Ki 67 was positive in 8 patients.

3.3. Therapeutic Characteristics

Radical surgery: Mastectomy according to Patey with axillary lymph node dissection.

Conservative surgery: breast conservative surgery with axillary lymph node dissection.

94 patients (89.5%) benefited from a radical surgery with neo adjuvant and adjuvant chemotherapy; 2 patients (1.9%) benefited from concervative surgery with an adjuvant chemotherapy and a radiotherapy; 9 patients (including 2 cases of bilateral cancers) had a palliative chemotherapy (Table 4).

However, no patient had targeted therapies (hormonal therapy, antiHER2) in their treatment.

3.4. Global Patients Survival

In the 98 patients without initial metastases, recurrence-free survival was 57% at

Table 3. Distribution of patients according to the clinical stage.

Stage	Population	Frequency (%)
T		
- 1	2	1.9
- 2	10	9.5
- 3	87	82.9
- 4	6	5.7
- Total	105	100.0
N		
- 0	53	50.5
- 1	37	35.2.
- 2	15	14.3
- Total	105	100.0
M		
- 0	98	93.3
- 1	7	6.7
- Total	105	100.0
Pev		
- 0	58	55.2
- 1	31	29.5
- 2	12	11.4
- 3	4	3.9
- Total	105	100.0

Table 4. Distribution of patients according to the treatments performed.

Type of Treatment	Population	Frequency (%)
Surgery		
- Conservative	2	2.1
- Radical	94	89.5
- Non indicated	9	8.6
- Total	105	100.0
Radiotherapy		
- Yes	2	1.9
- No	103	98.1
- Total	105	100.0
Chemotherapy		
- Adjuvant	2	1.9
- Neoadjuvant + Adjuvant	94	89.5
- Palliative	9	8.6
- Total	105	100.0

5 years and 6% at 10 years. Overall survival in 105 patients was 55% at 5 years and 5% at 10 years (Figure 2).

4. Comments

4.1. Epidemiological Characteristics

- **Frequency**:

During the study period, the incidence of breast cancer in women under 40 was 8.4%, close to that reported by Yeo in China (8.9%) and Molinié in France (10%) [1] [2], but lower than those of Boufettal in Morocco (25.4%) and Thangjam in India (31.5%) [3] [4]. In the World, the distribution of breast cancers among women under the age of 40 varies from one region to another, but their incidence appears to be increasing in different countries and more marked in the black race [5] [6].

- **Socio-demographic characteristics**

o Age

The average age of our patients was 38.9 years (28 - 39 years) and among them the majority were over 35 years old (64.8%). This trend is confirmed by Borg who claims that in young subjects the incidence of breast cancer doubles every ten years until menopause [7]. As for patients under 35 years of age (35.2% of our population) they could not benefit from an oncogenetic consultation (unavailable in our country) to seek a family form of cancer. In these patients, however, we have sensitized their close relatives (sisters and mothers) on targeted breast cancer screening: self-examination of the breasts, annual clinical examination of the breasts and mammography at the age of 40 years.

o Socio-economic level

The majority of our patients had a satisfactory level of education for understanding their illness and the resulting care (secondary or higher levels),

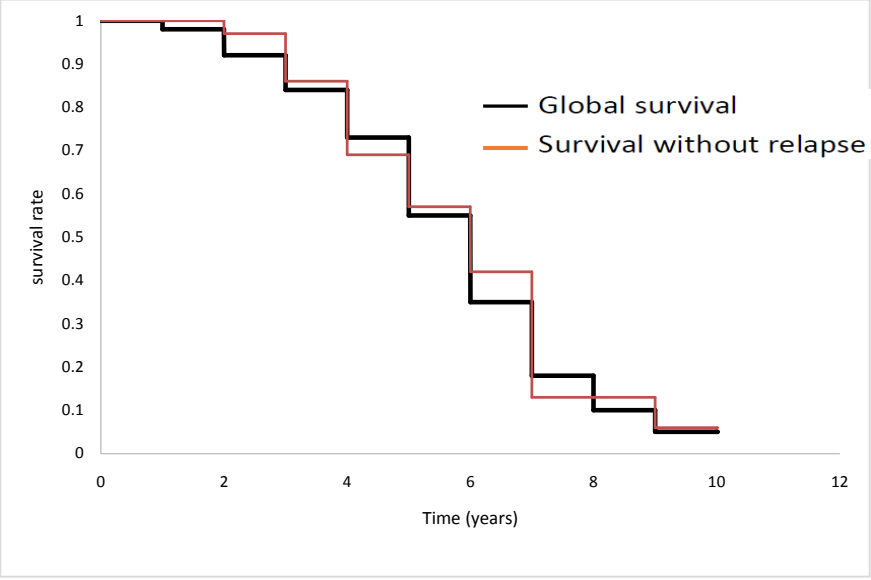

Figure 2. Kaplan Meier survival curve of patients over 10 years.

but they had no monthly income in general (61.7%), which was an obstacle for their care. Indeed in our country there is no social coverage for breast cancers and the cost of care is still not accessible to people of low socioeconomic status.

- **History**

We have found in the history of some of our patients classic risk factors for breast cancer: menarche before 12 years (48.6%), nulliparity (20%), history of oestroprogestrative contraception (11.4%) history of mammal pathology (7.6%). However, the family history of breast cancers was only found in 1.9% of cases. In the literature it is described that 20% to 30% of breast cancers in young women under 35 or even 40 are familial forms linked to genetic mutations [8] [9]. It would therefore be interesting to equip our services with oncogenetic laboratories for a more objective investigation of these forms of cancer in our country.

4.2. Clinical Characteristics

- **Discovery circumstances**

In our series the discovery of a breast abnormality was made in the majority of cases by the patients (97.1%), by the palpation of the nodule in the breast (85%). This mode of discovery, which contributes to the delay in diagnosis, remains the usual mode of discovering breast cancers in patients (regardless of their age) in our low-resource countries, because there is generally no screening campaign. However, in women younger than 40 years of age, the discovery of breast cancers is often made by patients, even in developed countries, as they are not usually eligible for routine screening by mammography [10]. And it is not unusual, in these developed countries, that the diagnosis be equally made at advanced stages of the disease in the women under 40 years of age [11].

In our countries with limited technical capacity, we must therefore continue to encourage the practice self-examination and the annual clinical examination of the breasts so that the diagnosis can be made at an early stage.

- **Consultation delay and clinical stage**

Patients in our series consulted as a whole late: the average consultation time after the discovery of an abnormality in the breast was 7.3 months. Touré, in a study carried out in our country, also made the same finding by reporting that 79% of his patients had consulted within ten months. He also described the main reasons for the delay in consulting patients: lack of financial means, traditional medication, error in the diagnosis [12].

These delays in consultation, coupled with delays in the discovery process, led directly to advanced diagnosis in several patients in our study: T3 and T4 (88.6%), N1 and N2 (49.5%), M1 (6.7%). In developed countries, where patients generally consult an abnormality in their breast, diagnosis is made at earlier stages: T1 and T2 greater than 85%, and N0 greater than 95% [13] [14] [15] [16].

- **Clinical forms**

In our series breast cancers were isolated in the majority of cases (92.4%), but particular forms related to the young age were also encountered: forms associated with pregnancy (5.7%) and bilateral synchronous forms (2 cases).

These particular forms are often met in young patients. Guendouz found in a series of 612 women under 35 years of age suffering from breast cancer, 52 cases (8.5%) associated with a pregnancy and 9 cases (1.5%) of bilateral cancer [17]. Bakkali also reported 17% of breast cancer associated with pregnancy in his series [18]. Moreover, in several articles the young age was cited as risk factor of the bilateral cancers [19] [20] [21].

- **Histological characteristics**

The most common histological types in our series were infiltrating ductal carcinomas (86.5%), with SBR II (68.6%) and SBR III (26.6%) grades. Moreover, the parameters determined by the immunohistochemistry (RH-Ki 67-HER2) could not be specified in the majority of our patients because the laboratories in Cote d'Ivoire were not equipped to carry out this examination. Only 10.5% of the patients performed this examination (done in France at the expense of the patients themselves). Hormonal receptors and HER2 were negative in all of these patients, but the majority had a positive Ki 67 (72.7%).

In the literature these same histological characteristics are the most frequent in cancers in young women: infiltrating ductal carcinomas, often of multicentric type with a high Ki 67, and negative hormonal receptors and HER2 [10].

4.3. Therapeutic Characteristics

In our study population, the majority of patients underwent radical surgery with neo-adjuvant and adjuvant chemotherapy. Nevertheless, 2 patients were able to benefit from a lumpectomy followed by radiotherapy (performed in another country). The axillary dissections were systematic because our technical equipment did not allow us to search for sentinel lymph nodes. Thus our therapeutic strategies were indicated according to the stage of the disease, the absence of radiotherapy and the impossibility of extemporaneous anatomo-pathological examination.

Moreover, targeted therapies (hormonal therapy and anti-HE2) were not indicated in our patients because they were either ineligible or of undetermined eligibility.

Concerning the cases of cancers associated with the pregnancy in our study, the 3 patients in the first trimester had previously a therapeutic interruption of pregnancy before the treatment of their cancer, whereas in the 3 others, the treatment of their cancer began after the Birth of their child.

In general, although breast cancers in young women are more aggressive than in women over 40 years of age, therapeutic indications remain the same regardless of age [16] [17] [22] [23].

4.4. Survival

In our series, the recurrence-free survival was 57% at 5 years and 6% at 10 years. As for the global survival it was 55% at 5 years and 5% at 10 years.

Elsewhere in Africa mainly in Algeria where radiotherapy is performed, Guendouz reported in his series a better global survival: 59.1 at 5 years and

56.7% at 10 years [17]. In developed countries the prognosis is more interesting with a 5-year survival rate above 70% [24] [25]. Nevertheless, in several studies, it has been shown that the prognosis of breast cancers in women under 40 years of age remains worse than in older women at an equal stage [2] [5] [10].

5. Conclusion

This study enabled us to confirm that breast cancers in young women were a reality in our country and posed us enormous difficulties in their management. These difficulties were mainly related to diagnostic delays and the limited technical equipment. To improve the prognosis we therefore encourage self-examinationr and the annual medical examination of the breasts in young patients, but also the setting up of equipped laboratories and radiotherapy centers.

Declarations

Funding: None
Conflict of interest: None

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