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Epidemiological and Clinical Profile of Breast Cancer at Bamako Radiotherapy Center

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Abstract

Breast cancer is a major public health problem because of its incidence and mortality. Purpose: To establish the epidemiological and clinical characteristics of breast cancer seen at the radiotherapy center at the Mali Hospital of Bamako. Patients and methods: It was a retrospective, descriptive study of data from patients seen for breast cancer at the Center of Radiotherapy of Mali Hospital between April 2014 and December 2016. The parameters studied were: age, sex, family history of breast cancer, menopausal status, parity, breast tumor location, histological type, histological grade, cancer classification stage. Results: 134 cases of breast cancer were collected, with a frequency of 15%. The sex ratio (H/F) of 0.007. The patient's mean age was 47 ± 11 years old. The most represented age groups were 33 - 47 years old with 45.5% and 48 - 62 years old with 39%. Three percent (3%) of patients had a family history of breast cancer. Fifty (50%) of the patients were menopausal. The main clinical signs found were : mammary nodules (98%), mastodynia (65%), nodes (67%). Invasive ductal carcinomas were found in 94% of patients, followed by infiltrating lobular carcinomas with 3.7% and metaplastic carcinomas with 1.7%. SBR Grades II and III were mostly found with 37% and 23%. The average tumor size was 87 mm ± 43. Stage III was predominantly represented with 72%, followed by Stage II with 24% and Stages I and IV with 2% each. Conclusion: Breast cancer is common and reaches both before and after 50 years; the diagnosis is usually late; hence it is the importance of raising awareness and screening before the age of 50 and popularizing some complementary tests to better understand the prognosis of this disease and promote more targeted and conservative treatments that will improve survival.

Keywords

Breast Cancer, Epidemiology, Clinic

1. Introduction

Breast cancer is characterized by the uncontrolled development of cancer cells in the mammary gland. It is a major public health problem because of its high incidence and mortality. With 2.088.849 new cases identified (11.6%) and 626.679 (6.6%) cases of death worldwide, it accounts for 25.1% of all cancers [1] [2].

The incidence of breast cancer is 4 to 10 times higher in Western countries (mainly in the United States and Northern Europe) compared to Asia and Africa [1] [3].

In sub-Saharan Africa, the incidence of breast cancer varies by country [4]; in Mali, from 2006 to 2010 it is in second place after the cervix, with a relative frequency of 18.7%, it is the second cause of cancer death after cervical cancer [5]. It is currently first cancer in terms of incidence according to the 2010-2017 Bamako cancer registry.

To our knowledge, in Mali, there are no published data on the epidemiological and clinical characteristics of this cancer. This is why, in this work, we propose to study the epidemiological and clinical characteristics of breast cancer treated at the radiotherapy center of the Mali Hospital of Bamako.

2. Patients and Methods

This was a retrospective and descriptive study of the data of patients monitored for breast cancer at the Bamako Radiotherapy Center of the Mali Hospital, between April 2014 to December 2016.

Included in the study was any case of histologically proven breast cancer and seen at the radiotherapy center for management, regardless of age and gender. Patients with no histological diagnosis were not included in this study.

The data was collected from the patient's medical records and the radiotherapy department's registry.

The parameters studied were: age, sex, family history of breast cancer, menopausal status, parity, breast tumor location, histological type, histological grade, stage of classification of the breast. Cancer.

The classification of cancers was based on the clinical examination according to the location of the primitive and on the extension assessment.

The clinical examination specified if possible the size of the tumor as well as its extensions. The radiological examinations were most often a mammography coupled with an ultrasound, a chest x-ray, an abdominopelvic ultrasound and/or a thoraco-abdominopelvic CT scan. Bone scans were not requested because they were not feasible in Mali. The search for hormonal receptors and the Her 2 neu membrane receptor by immunohistochemistry was also not feasible in Mali during the study period. The seventh edition of the TNM classification of the International Union against Cancer (UICC) was used for staging [6]. Data analysis was done using SPSS23.0 software.

3. Results

Epidemiological characteristics:

From April 2014 to December 2016, we received 890 cases of cancer including 134 cases of breast cancer, a frequency of 15%. With only one man the sex ratio (H/F) was 0.007. The mean age of our patients was 47 ± 11 years with extremes ranging from 18 to 88 years. The most represented age groups were 33 - 47 years old with 45.5% and 48 - 62 years old with 38.8% (Table 1).

Clinical features:

In the cohort, 3% of patients had a family history of breast cancer. They were pauciparous in 59%, multiparous in 32% of cases and nulliparous in 8% of cases. At the time of diagnosis, 50% of the patients were menopausal.

The clinical sign of discovery was a mammary nodule in 98% of patients. Mastodynia was found in 65% of patients. In 67%, lymph node involvement was the mode of revelation. Nipple discharge was present in 18%, the appearance of orange peel was found in 4% and ulceration in 16% (Table 2).

Paraclinical aspects:

Ultrasound was performed in all patients. It was coupled with mammography in 94% of cases.

Table 1. Characteristics of the study population.

Characteristics	EFFECTIVE (N = 134)	PERCENTAGE %
AGE		
Mean	47 ± 11 years	
Médian	47 years	
Extreme	[18 - 88] years	
AGE GROUPS		
18 - 32 years	10	7.5
33 - 47 years	61	45.5
48 - 62 years	52	38.8
63 - 77 years	10	7.5
78 - 92 years	1	0.7
FAMILY ANTECEDENT OF BREAST CANCER		
NO	130	97.0
YES	4	3.0
PARITY		
Multiparous	43	32.1
Not applicable	1	0.7
Nulliparous	11	8.2
Paucipare	79	59.0
MENOPAUSE		
No	65	48.5
Yes	68	50.7

Table 2. Characteristics of the study population.

Characteristics	EFFECTIVE (N = 134)	PERCENTAGE %
LOCATION OF CANCER		
Bilatéral Breast	2	1.5
Right breast	52	38.8
Left breast	80	59.7
CIRCUMSTANCES OF DISCOVERIES		
NODULE		
No	2	1.5
Yes	132	98.5
Mastodynia		
No	47	35.1
Yes	87	64.9
AXILLARY ADENOPATHY		
No	44	32.8
Yes	90	67.2
MAMELONARY FLOW		
No	109	81.3
Yes	25	18.7
ORANGE PEEL		
No	129	96.3
Yes	5	3.7
ULCERATION		
No	112	83.6
Yes	22	16.4
HISTOLOGICAL TYPE		
CCI	126	94
CLI	5	3.7
CMI	2	1.5
Phyllode sarcoma	1	0.7
GRADING SCARFF BLOOM OF RICHARDSON (SBR)		
SBR I	6	4 .47
SBR II	50	37.31
SBR III	31	23.13
Unspecified	47	35

Histologically, infiltrating ductal carcinoma was found in 94% of patients. It was followed by infiltrating lobular carcinomas (3.7%) and metaplastic carcinomas with 1.7%. Sarcomas were found in 0.7% of cases. The rank of Scarff Bloom and Richardson (SBR), could be evaluated in 65% of which 4% of Grade I, 37% of Grade II and 23% of Grade III.

As part of the extension assessment, 76% of patients had chest X-rays and 99% had abdominal ultrasonography. Thoracoabdominopelvic CT was performed in 60% of patients (Table 3).

Table 3. Characteristics of the study population.

Characteristics	EFFECTIVE (N = 134)	PERCENTAGE %
PARACLINIC EXAMINATIONS		
MAMMOGRAPHY		
No	8	6.0
Yes	126	94.0
BREAST ULTRASOUND		
No	0	0
Yes	134	100.0
X-Ray Chest		
No	32	23.9
Yes	102	76.1
ABDOMINAL ULTRASOUND		
No	1	0.7
Yes	133	99,3
SCANNER THORACO-ABDOMINO ± PELVIAN		
No	54	40.3
Yes	80	59.7
SIZE OF TUMOR		
Average	86.85 ± 42.839 mm	
Median	93 mm	
extremes	[6 - 182] mm	
CLASSIFICATION TNM UICC 7th EDITION		
TUMOR		
T1	6	4.5
T2	23	17.2
T3	42	31.3
T4	63	47.0
ADENOPATHY		
N0	43	32.1
N1	51	38.1
N2	24	17.9
N3	16	11.9
METASTASIS		
M0	131	97.8
M1	3	2.2
STADING		
IA	3	2.2
IIA	23	17.2
IIB	9	6.7
IIIA	29	21.6
IIIB	52	38.8
IIIC	15	11.2
IV	3	2.2

Mean tumor size was 87 ± 43 mm with extremes ranging from 6 to 182 mm. Patients were graded and staged according to the criteria of the seventh edition of the TNM classification of the International Union against Cancer (UICC).

Thirty-one (31%) of the patients had a tumor size greater than 5 cm. In 47% of cases, the tumor was extended to the chest wall and/or the skin. The ipsilateral axillary lymphadenopathies were found in 38% of patients, while 18% had fixed homolateral axillary adenopathies and 12% had supraclavicular lymphadenopathies. Three percent of the patients had secondary locations. Stage III was predominantly represented with 72%, followed by stage II with 24% and stages I and IV with 2% each (Table 3).

4. Discussion

Breast cancer is the first cancer in the world [1] [2]. In 33 months, at the Radiotherapy Center of the Mali Hospital, we collected 134 cases out of 890 cases of cancer (15%), an average of 30.25 cases per year. In Africa the incidence of breast cancer varies between countries. So in Niger, Zaki *et al.* report 64.5 cases per year [7], in Togo, Darré *et al.*, Report 22.5 cases per year [8]. Overall this frequency found in Africa is lower than in Europe and represents 24.2% [1].

In our study, women accounted for 99.2% of cases, a sex ratio (M/F) of 0.007. This result is lower than those reported in Niger and Togo which were respectively 0.03 and 0.023 [7] [8]. This could be explained by the fact that our study was monocentric. For some authors, the rarity of breast tumors in the male sex is explained by the atrophic nature of the gland, the delicacy of the milk ducts, the absence of acini and the abundance of fibrous tissue in man [9].

As for age, the extremes ranges from 18 and 88 years old, with an average age of 47 ± 11 years. These results are comparable to those found in Cameroon [4]. In our series, breast cancer was common in both patients before and after 50 years. The most represented age groups were respectively 33 - 47 years old with 45.5% and 48 - 62 years old with 39% while in the Cameroonian series 17% of the patients were between 45 - 49 years old [4]. In Niger, Zaki *et al.* found 69.89% of breast cancers in women before age 50 [7]. The results found in Africa are different from those found in the USA or 50% of cases of breast cancer are diagnosed in women over 65 years. In Europe, the incidence of breast cancer is 210 per 100,000 for women aged 50 - 54 and more than 300 per 100,000 women at age 70 [10] [11].

In our family history study, so-called hereditary breast cancer is rare with a frequency of 3%. This result is significantly lower than the Cameroonian and Tunisian studies, which had recovered respectively 23% and 13.23% [12].

Conventionally, multiparity is a factor in reducing the risk of breast cancer, in our series, 32% of patients were multiparous. This result is lower than that of Sano *et al.* (7) with 54% multiparas among women with breast cancer in Burkina Faso [13]. Breast cancer was diagnosed in 48.5% of premenopausal patients, which is lower than the study by Dem *et al.* Who found that 57.3% of these malignancies are diagnosed before age 50 [14].

The tumoral involvement concerned the left breast in 60% of cases, comparable to the Guinean series which found a frequency of 56% [15]. In 1.5% of cases

the involvement was bilateral, in the literature the bilateral involvement varies between 3% - 13% [16]. Regarding the circumstances of discovery, the self-examination of nodules was found in 98% of patients, which may or may not be associated with mammalian mastodynia and axillary adenopathy in more than 60% of cases, whereas in the Tunisian series, the nodule was present. at 81.4% [17].

Histologically, there was a preponderance of infiltrating ductal carcinomas with 94%, followed by infiltrating lobular carcinoma with 3.7% and metaplastic carcinoma with 1.7%. These results are comparable to the Moroccan and Cameroonian series but with different proportions [4] [18].

There was a predominance of SBR grade II in our patients, which corroborates with the Cameroonian study which also found a higher frequency of grade II SBR (66%), followed by Grades III and I with 20% and 14% [4]. However it should be noted that 35% of our patients had not been able to benefit from this grading. Immunohistochemistry was not practiced during the study period; no patient was able to benefit from a search for hormonal receptors and Her2neu.

In our series, the average tumor size was 87 mm, much higher than the patients of the Moroccan series which was 36 mm, this could be explained by a lack of awareness and screening on breast cancer in Mali.

Stages II and III were predominantly represented with 24% and 72%, thus requiring much more radical treatments. Bouchbika Z *et al.*; had demonstrated the value of early diagnosis and mammography screening, which increased from 2004-2009 to Ibn Rochd Hospital in Casablanca, stages II and III from 50% and 30% to 54% and 16%; which makes it possible to increase the rate of conservative treatments [3].

Our results concern the only cancer treatment center by radiotherapy in Mali, but are comparable to those of the Bamako cancer registry.

5. Conclusion

In our context breast cancer remains a major public health problem; in our series, we find a slight predominance of subjects under 50 years. The diagnosis is usually late in our context, hence it is the importance of raising awareness and screening before the age of 50. This will promote more conservative and targeted treatments that will improve patient survival.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A. and Jemal, A. (2018) Global Cancer Statistics 2018: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, **68**, 394-424. https://doi.org/10.3322/caac.21492

[2] Youlden, D.R., Cramb, S.M., Dunn, N.A., *et al.* (2012). The Descriptive Epidemiology of Female Breast Cancer: An International Comparison of Screening, Incidence, Survival and Mortality. *Cancer Epidemiology*, **36**, 237-248. https://doi.org/10.1016/j.canep.2012.02.007

[3] Bouchbika, Z., Serhier, Z., Sahraoui, S., Bennani-Othmani, M. and Benider, A. (2012) Stade du cancer du sein lors du diagnostic: Impact des campagnes de sensibilisation. *Pratiques et Organisation des Soins*, **43**, 269-275. https://doi.org/10.3917/pos.434.0269

[4] Ndamba Engbang, J.P., Essome, H., Mve Koh, V., Simo, G., Sime Essam, J.D., Sone Mouelle, A. and Oyono Essame, J.L. (2015) Cancer du sein au Cameroun, profil histo-épidémiologique: À propos de 3044 cas. *The Pan African Medical Journal*, **21**, 242. https://doi.org/10.11604/pamj.2015.21.242.7269

[5] Traore, C.B., Coulibaly, B., Malle, B., Kamate, B., *et al.* (2012) Le cancer a bamako de 2006 a 2010. Données du registre des cancers au Mali. *Revue Africaine de Pathologie Juin*, **11**.

[6] Sobin, L., *et al.* (2009) Classification TNM 7ième édition de l'Union Internationale Contre le Cancer (UICC).

[7] Zaki, H.M., Garba-Bouda, O., Garba, S.M. and Nouhou, H. (2013) Profil épidémiologique et anatomopathologique du cancer du sein au Niger. *African Journal of Cancer*, **5**, 185-191. https://doi.org/10.1007/s12558-013-0274-9

[8] Darré, T., Amegbor, K., Sonhayé, L., Kouyate, M., Aboubarak, A., N'Timo, B., *et al.* (2013) Profil histo-épidémiologique des cancers du sein: À propos de 450 cas observés au CHU de Lomé. *Médecine d'Afrique Noire Électronique*, **60**, 53-58.

[9] Ioanmidou, L., Mouzakal, N.J., Agnantis, H. and Mahera, N.X. (1987) Papacharacampous. *Journal de Gynécologie Obstétrique et Biologie de la Reproduction*, **16**, 851-860.

[10] Robert, J. and Kenn, M.C. (1994) Clinical Aspect of Cancer in the Elderly. *Cancer*, **74**, 2107-2117.

[11] Naik, A.M., Joseph, K., Harris, M., Davis, C., Shapiro, R. and Hiotis, K.L. (2003) Indigent Breast Cancer Patients among All Racial and Ethnic Groups Present with More Advanced Disease Compared with Nationally Reported Data. *The American Journal of Surgery*, **186**, 400-403. https://doi.org/10.1016/S0002-9610(03)00282-4

[12] Eisinger, F. (2005) Le dépistage des cancers du sein chez la femme à haut risque familial. *Bulletin du Cancer*, **92**, 874-884.

[13] Sano, D.I., Cisse, R., Dao, B., Lankoande, J., Traore, S.S.L., Soudre, R.B., *et al.* (1998) Le cancer du sein: Problèmes diagnostiques et thérapêutiques au CHU de Ouagadougou. *Médecine d'Afrique Noire*, **45**, 297-301.

[14] Dem, A., Traoré, B., Dieng, M.M., *et al.* (2006) Cancers gynécologiques et mammaires à l'Institut Curie de Dakar (Sénégal). *Oncol Clin Afr*, **2**, 17-21.

[15] Diallo, M.S., Diallo, T.S., Diallo, S.B., Camara, N.D., Diallo, F.B., Dieng, A., Diallo, Y. and Diaw, S.T. (1996) Les tumeurs du sein: Épidémiologie, clinique, anatomie pathologique et pronostic. *Médecine d'Afrique Noire*, **43**.

[16] Cucinotta, E., Calbo, L., Palmeri, R., Pergolizzi, F.P. and Melita, G. (1996) Bilateral Carcinoma of the Breast. *Chirurgia italiana*, **49**, 914.

[17] Jihen, J., Habib, A., Nabil, T., *et al.* (2010) Le cancer du sein chez la femme âgée epidémiologie et caractéristiques cliniques. *JIM Sfax*, No. 19/20, 36-46.

[18] Abbass, F., Bennis, S., Znati, K., Akasbi, Y., Amrani, J.K., El Mesbahi, O. and Amarti, A. (2011) Le profil épidémiologique et biologique du cancer du sein à Fès-Boulemane (Maroc). *Eastern Mediterranean Health Journal*, **17**.