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Epidemiological, Clinical and Histological Profile of Breast Cancer in Women in the Zinder Region of Niger

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ABSTRACT

The objective of the study was to report the epidemiological and histological profile of breast cancer in the Zinder region of Niger.

Methodology: *This was a descriptive cross-sectional study of 217 documented cases of breast cancer over a 5-year period from 1 January 2020 to 31 December 2024 in referral centres in the Zinder region.*

Results: *We collected 217 documented cases of cancer. The average age was 41.59 ± 11.78 years, with extremes of 26 and 65 years. 84.33% were housewives, 48.38% were multiparous, 75.12% had no schooling, and 75.57% were from rural areas. A family history of breast cancer was found in 11.88%. The diagnosis was made in 61.75% of cases more than 6 months after the onset of symptoms. The most common clinical signs were pain, lymphadenopathy, skin lesions, and the presence of a tumour mass, found in 78.34%, 85.71%, 85.71%, and 100% of cases, respectively. The right breast was affected in 59.44% of cases. The clinical stages were dominated by T3 and T4 stage cancers in 58.52% and 30.87% of cases, respectively. Pathological examination found ductal carcinoma as the histological type in 68.75% of cases. Immunohistochemistry was performed in 21.65% of cases.*

Conclusion: *Cancer affects young women, most of whom are multiparous, some with a family history of the disease, and is discovered at a late stage. Invasive carcinoma is the most common histological type.*

Keywords

Breast cancer, Epidemiological profile, Histological profile, Zinder region, Niger.

Introduction

Breast cancer is a public health issue in both developed and developing countries [1,2]. Its global incidence was estimated at 2, 261,419 cases worldwide, with 684,996 deaths. In Africa, it was estimated at 186,598 cases with 85,787 deaths according to data from the International Agency for Research on Cancer in 2020 [3]. In sub-Saharan Africa, it is the most common cancer among women, with 129,000 women newly diagnosed in 2020. The situation is even more alarming due to a critical lack of infrastructure and equipment necessary for early diagnosis and adequate treatment. The five-year survival rate is slightly less than 50% in this part of the world [4]. In this same region of Africa, the annual number of women diagnosed with breast cancer is expected to nearly double by 2040 due to ageing and population growth

[4]. In Niger, breast cancer remains a real public health problem despite a programme of free cancer care introduced in 2005, and diagnosis is still often late. Little data exists on breast cancer in women in Niger [5,6], particularly in the Zinder region. Given this observation and the context of increasing breast cancer mortality worldwide, we conducted this study to contribute to scientific knowledge by reporting data on breast cancer in the Zinder region. The objective of the study was to report the epidemiological and histological profile of breast cancer in the Zinder region of Niger.

Patients and Methods

This was a descriptive cross-sectional study of 217 cases of women diagnosed with breast cancer in the Zinder region over a five-year period from 1 January 2020 to 31 December 2024. All cases of women diagnosed with breast cancer by histology during the study period were included. All women with other breast pathologies and all cases of breast tumours without histology were excluded. The following elements were analysed: sociodemographic characteristics of patients (age, parity, educational level, social status, occupation, origin), clinical and paraclinical data (history, time to diagnosis, clinical signs, TNM classification, histology). The diagnosis of cancer was made on the basis of clinical examination and confirmed by pathological examination after surgical excision, breast mass sampling or biopsy. The data were extracted from the analysis of the patients' medical records and the results of paraclinical examinatio Statistical analysis and data analysis were performed using Epi Info 7.2.1 and R Studio software. Word 2016 and Excel 2016 software were used to create tables and figures.

Ethical considerations

The study was conducted in strict accordance with the principles of scientific research. Results Epidemiological data: During the study, 217 breast cancer records were analysed. The average age of the patients was 41.59 ± 11.78 years, with extremes of 26 and 65 years (Table 1). Housewives accounted for 84.33% of patients, and 75.57% were from rural areas (Table 1). Women who had given birth multiple times accounted for 48.38%, and 75.12% had no schooling (Table 1).

Clinical data

The average time between clinical manifestations and diagnosis was 22.9 ± 15.4 months, ranging from 2 to 47 months. A family history of breast cancer was found in 11.98% of cases (Table 1). On examination, 100% of patients had a lump and/or nodule in the breast(s). Pain and inflammation were present in 78.34% of patients. Skin lesions were found in 85.71% of cases and lymphadenopathy in 85.71% of patients (Table 1). The tumour was found in 58.06% of cases in the right breast and 41.02% in the left breast. In two cases, the lesions were bilateral with a metachronous progression (Figure 3). Stages T3 and T4 according to the UICC cTNM classification were found in 58.52% and 30.87% of cases, respectively (Table 1). Paraclinical data Pathological examination revealed invasive ductal carcinoma in 68.75% of cases. Immunohistochemistry was performed in 21.65% of cases (Table 2). In addition, anaemia was found in 60,82%.

Table 1: Distribution of patients according to socio-demographic characteristics.

Characteristics		N	%
Age	26-35	29	13,37
	36-45	113	52,07
	46-55	56	25,80
	56-65	19	8,76
	Total	**217**	**100**
Level of education	primary	33	15,20
	secondary	15	6,92
	higher	6	2,76
	unschooled	163	75,12
	Total	**217**	**100**
Marital status	married	176	81,10
	single	6	2,77
	widow	35	16,13
	Total	**217**	**100**
Ocupation	housewife	183	84,33
	employee	17	7,83
	student/pupil	4	1,84
	liberal	13	6,00
	Total	**217**	**100**
Parity	nulliparous (0)	11	5,07
	primiparous (1)	24	11,06
	pauciparous (2 à 3)	18	8,30
	multipares (4 à 5)	59	27,19
	large multiparous (6 a plus)	105	48,38
	Total	**217**	**100**
Place of residence	Rural	164	75,57%
	Urban	53	24,43
	Total	**217**	**100**

Table 2: Summary of clinical and laboratory data for patients.

Characteristics		N	Percentage
Family history of cancer (n= 217)		26	11,98
Consultation period (months)	[1 to 3]	26	11,99
	[4 to 6]	57	26,26
	[6 and above]	134	61,75
Breast signs	associated pain	170	78,34
	breast discharge	14	6,45
	skin lesion	186	85,71
	adenopathy	186	85,71
	mass/nodule	217	100
Tumor size (n=217)	T0	0	00
	T1	3	1,39
	T2	20	9,22
	T3	127	58,52
	T4	67	30,87
Biology/Complete blood count	anemia	132	60,82
Histology (n = 217)	invasive ductal carcinoma	172	79,26
	infiltrating lobular carcinoma	28	12,90
	lobular carcinoma *in situ*	3	1,38
	other forms of carcinomas	14	6,46
Immunohistochimie (n = 217)	Triple negative	29	13,36
	Luminal B + HER2 positive	9	4,15
	HER2 positive	9	4,15
	unrealized	170	78,34

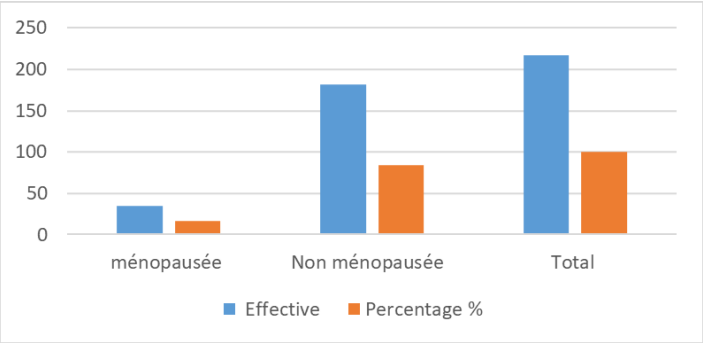

Figure 1: Distribution of patients according to menopause status.

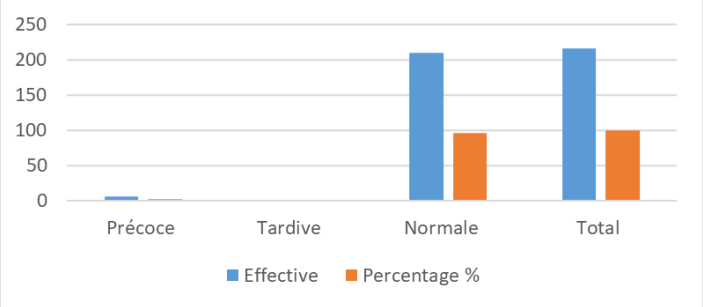

Figure 2: Distribution of patients according to the age of oncet of puberty.

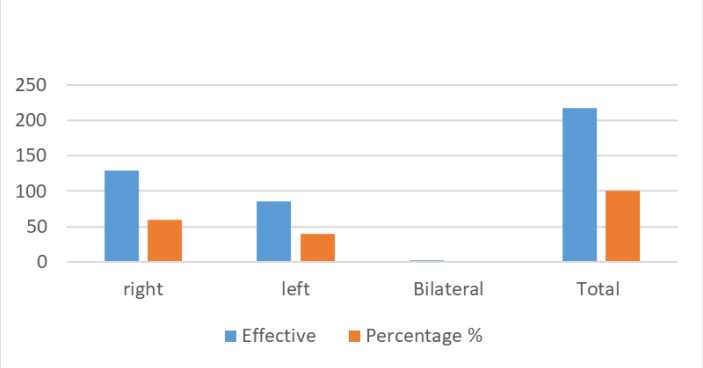

Figure 3: Distribution of patients according to the affected breast.

Discussion

Epidemiological data

Breast cancer is the leading cancer among women worldwide and in Niger [4,5]. It accounts for a quarter of all cancers occurring in women worldwide [4]. We do not have data for cancer in the entire Zinder region, but the National Cancer Center records 753 new cases each year [7]. This can be explained by the influx of patients from all regions of Niger and neighboring countries to this center due to the availability of diagnostic and treatment facilities and, above all, the free care offered by the national center. These projected figures are far from reflecting the reality of breast cancer in Niger, as there is a lack of diagnosis and data due to insufficient mass screening and the almost total absence of anatomy-pathology laboratories in the regions for diagnosis. Added to this is the absence of cancer registries in regional referral facilities. In our study, one in eight patients had a family history of breast cancer. The literature generally reports that 10 to 15% of breast cancer cases are familial in nature [8]. The lack of genetic testing in Niger and Africa in general leaves the only alternative of developing a screening policy based on close clinical and radiological monitoring of family members of breast cancer patients and mass screening. In our series, we found a mean age of 41.59 ± 11.78 years, with extremes of 26 and 65 years, and high multiparity. This mean age and multiparity were reported by Nayama in Niger as 44.23 years [9]. The young age of our patients could reflect the population of Niger, which is composed of a majority of 60% young people. However, African researchers are currently considering the role of the BRCA 1 and 2 genes [10,11], as in developed countries, 80% of breast cancer cases occur post-menopause [12]. 75.57% of patients live in rural areas. This could be explained by the fact that 80% of Niger's population lives in rural areas, and most patients who live in urban areas go to the national center in Niamey, and often outside the country, for treatment.

Clinical data

The average time between the first clinical manifestations and diagnosis was 22.9 ± 15.4 months, with extremes of 2 and 47 months. The issue of breast cancer in Niger lies mainly in the realm of socio-cultural beliefs, as breast cancer is considered to be an attack by a supernatural entity commonly known as “Daji” in certain regions of Niger, according to community beliefs. This belief delays diagnosis and makes victims vulnerable to early recourse to care. However, authors have also reported that the lack of screening exacerbates long delays in consultation [13,14]. This would explain the predominance of T3-T4 stage tumors in our study, with lymph node involvement or even metastasis at the time of diagnosis, as also found in our African context [10,11,15]. In Africa, national cancer control programs suffer from many shortcomings due to a lack of commitment from decision-makers, whereas in Western countries, mass screening and monitoring of at-risk families has significantly improved the prognosis for breast cancer [10]. Prevention activities in the fight against breast cancer are carried out by NGOs and public structures, particularly as part of Pink October activities. This is a period of awareness-raising and education that enables women to perform breast self-examinations and thus seek medical advice at an earlier stage. In Niger, although free cancer care has been in place since 2006, low levels of knowledge about cancer and problems with access to screening persist due to a lack of regional cancer centers, mammography equipment, and anatomy-pathology laboratories in regional referral health facilities. All these factors could contribute to the frequency of T3-T4 stages, which are predominant in our study. Delayed diagnosis of breast cancer is a topic widely reported by several authors. Our future efforts must be directed toward educating the population about health issues by providing useful and reassuring information on early-stage cancer diagnosis and advocating for the revitalization of an effective national cancer control program through mobile screening clinics [16]. Results appear to be better in countries that have implemented public education programs on cancer, prevention, and screening [16]. According to the literature,

non-specific invasive carcinoma is the most common histological type of breast cancer [15,17,18]. Invasive ductal carcinoma is the most common histological type in both young and older women. Several authors have reported the frequency of an associated diffuse intraductal component in young women, reflecting a form of local tumor growth dependent on high levels of circulating estrogen [19]. Immunohistochemistry was performed in 21.65% of cases; this is a key test for therapeutic prognosis in the management of breast cancer. It allows for personalized management of breast cancer [17,19]. The geographical and financial accessibility of immunohistochemistry makes it difficult to perform [13,17] because the region does not have laboratories for this test. Triple-negative breast cancer is a rare and aggressive form of cancer, often linked to genetics and affecting young women, especially in Africa. It is a type of cancer found in African subjects [17,20]. This subtype is associated with a high probability of BRCA gene mutation and a poor prognosis [9,18].

Conclusion

This study on breast cancer in the Zinder region reports that, epidemiologically speaking, cancer is common. The victims were young women from rural areas with little education, diagnosed at an advanced stage of cancer, the histological type of which was invasive carcinoma.

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