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Therapeutic and Prognostic Aspects of Gynecological and Breast Cancers in Northern Benin from 2010 to 2020

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Abstract

Introduction: Gynaecological and Breast Cancers (GBCs) are a public health problem and management continues to be a concern. **Objective:** To study the therapeutic and prognostic aspects of GBC. **Method:** This was a cross-sectional and descriptive study from January 1, 2010, to December 31, 2020. It included cases where the diagnosis of GBC was made and confirmed on anatomopathological examination and where treatment was instituted. Male breast cancer cases were excluded. Data were entered and processed by Epi data 3.1.1. and Epi Info 7.2.0.1. **Results:** A total of 230 cases of GBC were collected. The mean age was 48.4 ± 11.14 years with extremes of 15 and 80 years. The cancers were of the breast (55.2%), cervix (28.8%), corpus uteri (7.8%), ovary (5.2%), vulva (1.7%) and vagina (1.3%). Of the 127 breast cancers, 107 (70.10%) women had undergone total or partial mastectomy with 89 cases of lymph node dissection (83.20%). Hormone therapy was instituted in 89 women (71.8%), chemotherapy in 87 women (81.3%), 27 (21.25%) had undergone immunohistochemistry (IHC). Histopronostic grades were specified in 96 cases, including 12 (12.5%) grade I, 60 (62.5%) grades II and 24 (25%) grade III. Of the 103 women with gynaecological cancer, 94.2% had received treatment, which was specific for 69 women (71.1%). Radiotherapy was not performed in any of the women. Among the 69 women, 8.7% of deaths were recorded. **Conclusion:** GBC is common in northern Benin. Their management is inadequate and mortality remains high. Priority should be given to prevention.

Keywords

Cancers, Treatment, Prognosis, Benin

1. Introduction

Gynaecological and Breast Cancers (GBCs) are a public health problem. Indeed, it remains the leading cause of cancer death in African women [1] [2]. In Benin, in 2020, according to data from the population-based cancer registry in the city of Parakou, 63.33% of all female cancers were GBCs, with a predominance of the breast and cervical cancers [3]. Also, mortality was 49.54% for breast cancer and 83.26% for cervical cancer [1]. For these two predominantly GBCs, mortality has decreased significantly in industrialised countries although the incidence remains high. In 2020, Globocan reported that mortality was 30.3% and 56.6% for breast and cervical cancer respectively worldwide. Benin is not spared this mortality, where it was 53% for breast cancer and 65.7% for cervical cancer [4]. This indicates that there is more adequate management of GBCs in developed countries than in developing countries, including Benin [4]. How is GBC managed in Benin and more precisely in the North of Benin? To answer this question, we initiated this study whose general objective was to study the therapeutic and prognostic aspects of GBC.

2. Framework and Method

This was a descriptive cross-sectional study with retrospective data collection that took place from January 1, 2010, to December 31, 2020. The study population consisted of women admitted to the maternity wards of the three hospitals in the north of the country where anatomopathological examinations to confirm cancers are carried out, namely the University Departmental Hospital Borgou/Alibori (CHUD/B-A), the Military Hospital of Parakou (HIA-Parakou) and the St Jean de Dieu Hospital of Tanguiéta (HSJDT). Records of women with a clinical diagnosis and confirmatory pathology diagnosis and treatment were included. Poorly completed records were excluded. The census of records was exhaustive, based on the consultation and discharge registers, followed by their retrieval from the archives. The dependent variable was GBCs (breast and gynaecological cancers). The independent variables were anatomopathological (age; marital status; socio-professional level; nationality; ethnicity, religion), therapeutic (breast surgery, axillary surgery, colpohysterectomy, hysterectomy with or without adnexectomy, partial or total vulvectomy, lymph node dissection, radiotherapy, chemotherapy, hormone therapy) and prognostic (side effects, follow-up appointments, overall survival) aspects. Data computerising and analysis were done using Microsoft Word and Excel 2013, Epi data 3.1.fr and Epi info 7.2.0.1. The authorisation of the various authorities was obtained, and the confidentiality of the data was respected.

3. Results

Frequency

At the end of the study, 230 cases of breast and gynaecological cancers (GBCs) were recorded in 11 years, *i.e.* 20.9 cases per year. The GBCs collected were of

the breast (127; 55.2%), cervix (66; 28.8%), corpus uteri (18; 7.8%), ovary (12; 5.2%), vulva (4; 1.7%) and vagina (3; 1.3%). The frequency of GBC varies from year to year (Figure 1). Breast and cervical cancers remain the most frequent whatever the year.

Clinical stage

GBCs are received at all clinical stages of the disease (Table 1).

Histologic types

Table 2 shows the histologic types by cancer sites.

Treatment

The treatment of GBC depends on its site and stage of development. Treatment is as well as surgical, medical, radiological as hormonal.

Breast Cancer

Of the 127 breast cancer cases, 27 (21.25%) had undergone immunohistochemistry (IHC) including 12 triple-negative (44.50%), 6 luminal B (22.20%), 5 luminal A (18.50%) and 4 HER 2 + non-luminal (14.80%). Histopronostic grades were specified in 96 cases, of which 12 (12.5%) were the grade I, 60 (62.5%) grades II and 24 (25%) grade III. Histologic examination had noted 82 (64.60%) lymph node metastases. Of these, 107 women had undergone a total or partial mastectomy, whether or not for cleanliness (70.10%), 89 of whom had had lymph node dissection (83.20%). Hormone therapy was performed in 89

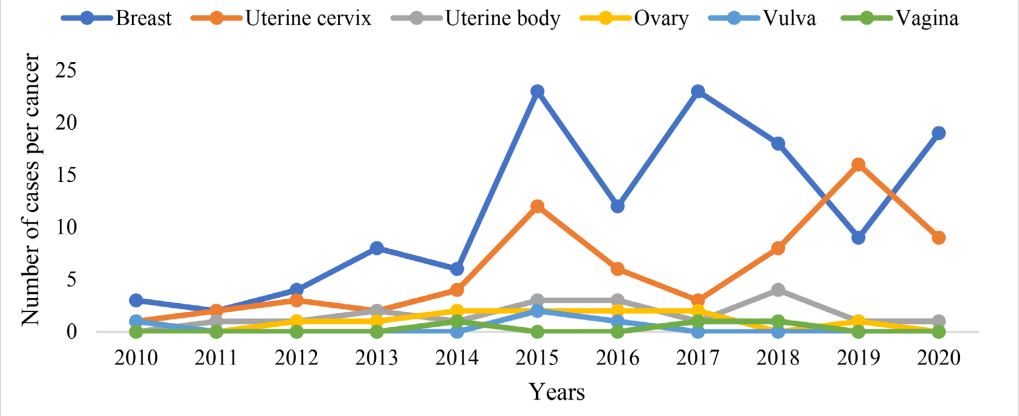

Figure 1. Evolution of the number of GBCs cases per site and per year in Northern Benin from 2010 to 2020.

Table 1. Distribution of women with GBC by clinical stage of discovery and by sites in North Benin from 2010 to 2020.

	Breast		Uterine cervix		Uterine body		Ovaries		Vulva		Vagina	
	n	%	n	%	n	%	n	%	n	%	n	%
Stage I	10	7.9	19	28.8	-	-	2	16.7	-	-	1	33.3
Stage II	24	18.9	23	34.8	10	55.6	5	41.7	2	50.0	1	33.3
Stage III	64	50.4	13	19.7	4	22.2	4	33.3	2	50.0	1	33.4
Stage IV	29	22.8	11	16.7	4	22.2	1	8.3	-	-	-	-
Total	127	100.0	66	100.0	18	100.0	12	100.0	4	100.0	3	100.0

women (71.8%). Radiotherapy was not performed in any of the women with breast cancer. Chemotherapy was performed in 87 women (81.3%) including neoadjuvant chemotherapy (51.6%). The protocols used are listed in Table 3.

Table 2. Distribution of GBC cases by histologic type in North Benin from 2010 to 2020.

		Workforce	Percentage (%)
Breast	Non-specific invasive carcinoma	99	77.90
	Ductal adenocarcinoma	17	13.40
	Mucinous adenocarcinoma	6	4.70
	Papillary invasive adenocarcinoma	2	1.60
	Papillary carcinoma	2	1.60
	Medullary carcinoma	1	0.80
	Total	127	100.00
Uterine cervix	Invasive squamous cell carcinoma	43	65.10
	Squamous cell carcinoma in situ	18	27.30
	Invasive adenocarcinoma	4	6.10
	Other	1	1.50
	Total	66	100.00
Uterine body	Adenocarcinomas	11	61.10
	Endometrioid carcinoma	5	27.80
	Other	2	11.10
	Total	18	100.00
Ovaries	Epithelial tumours	7	58.30
	Undifferentiated carcinoma	3	25.00
	Other	2	16.70
	Total	12	100.00
Vulva	Invasive squamous cell carcinoma	4	100.00
Vagina	Invasive squamous cell carcinoma	4	100.00

Table 3. Distribution of breast cancer cases according to the protocols used for chemotherapy in North Benin from 2010 to 2020 (n = 87).

	Workforce	%
Adriamycin + Cyclophosphamide	63	72.40
Paclitaxel (taxol)	11	12.60
5 fluorouracil + adrimycin +cyclophosphamide	5	5.80
5 fluorouracil + epirubicin + cyclophosphamide	2	2.30
docetaxel + adriamycin + cyclophosphamide	2	2.30
adriamycin + cyclophosphamide + taxol	4	4.60
Total	87	100.00

Total mastectomy and lymph node dissection were performed for all stages of breast cancer (Table 4).

Gynaecological cancers

Of the 103 women with gynaecological cancer, histologic examination revealed 31 cases of lymph node metastases (30.10%) and 97 (94.2%) women had received treatment, including surgical treatment in 69 (71.1%) women (Table 5).

Prognosis

The morbidity and mortality associated with GBCs is site-based.

Breast cancer

Of the 107 cases of treatment, 82 were discharged (76.6%), 8 were discharged against medical advice (7.50%), 4 were referred (3.70%) for unavailability of chemotherapy at the CHUD and the HIA, 8 were dead (7.50%) and 5 (4.70%) discharge modalities were not specified. Side effects were recorded in the 87 women who received chemotherapy (Table 6).

Gynaecological cancers

Of the 69 women who continued treatment, 55 (79.7%) had been put on treatment and 6 (8.7%) cases of death were recorded (Table 7).

Of the women who accepted the specific treatment, 32 (46.4%) had experienced side effects. The types of side effects are reported in Table 8.

The duration of survival at 5 years is dependent on the site of the GBC. Several patients were lost to follow up (Table 9).

Table 4. Distribution of women with breast cancer by clinical stage according to specific treatment in North Benin from 2010 to 2020.

	Stage I		Stage II		Stage III		Stage IV		Total	
	n	%	n	%	n	%	n	%	n	%
Conservative surgery	1	50.0	-	-	1	50.0	-	-	2	100.0
Total mastectomy	8	9.0	22	24.7	48	54.0	11	12.3	89	100.0
Cleanliness surgery	-	-	-	-	5	31.3	11	68.7	16	100.0
Axillary surgery	3	3.4	15	16.9	52	58.4	19	21.3	89	100.0
Chemotherapy	8	9.2	17	19.5	42	48.3	20	23.0	87	100.0

Table 5. Distribution of gynaecological cancer cases according to surgery performed in North Benin from 2010-2020 (n = 69)

	Uterine cervix		Uterine body		Ovary		Vulva		Vagina	
	n	%	n	%	n	%	n	%	n	%
Hysterectomy with adnexectomy	-	-	12	100	8	100	-	-	-	-
Hysterectomy without adnexectomy	16	36.4	-	-	-	-	-	-	-	-
Conization	2	4.5	-	-	-		-	-	-	-
Extended colpohysterectomy + CG*	26	59.1	-	-	-	-	-	-	3	100
Enlarged total vulvectomy + CG*	-	-	-	-	-	-	2	100	-	-
Total	44	100.0	12	100	8	100	2	100	3	100

*Ganglion removal.

Table 6. Distribution of women with breast cancer according to side effects experienced in North Benin from 2010 to 2020 (n = 94).

	Workforce	%
Loss of skin (hair, nails)	32	34.00
Anaemia	11	11.70
Lymph oedema	11	11.70
Vomiting	9	9.60
Urinary disorders	7	7.50
Post-operative pain	24	25.50
Total	94	100.00

Table 7. Distribution of women with gynaecological cancers according to discharge modalities after specific treatment in North Benin from 2010 to 2020 (n = 69).

	Uterine cervix		Uterine body		Ovary		Vulva		Vagina	
	n	%	n	%	N	%	n	%	n	%
Exeat	38	86.4	10	83.4	5	62.5	1	50.0	1	33.4
Deceased	2	4.5	1	8.3	2	25.0	1	50.0	-	-
Referred	3	6.8	-		1	12.5	-	-	1	33.3
LAMA*	1	2.3	1	8.3	-	-	-	-	1	33.3
Total	44	100.0	12	100.0	8	100.0	2	100.0	3	100.0

*Left against medical advice.

Table 8. Distribution of women with gynaecological cancers according to side effects in North Benin from 2010 to 2020.

	Uterine cervix		Uterine body		Ovary		Vulva		Vagina	
	n	%	n	%	n	%	n	%	n	%
Hair loss	1	5.3	-	-	1	25	-	-	-	-
Anaemia	7	36.8	1	14.3	1	25	-	-	-	-
Urinary disorders	1	5.3	2	28.6	1	25	-	-	-	-
Post-operative pain	12	52.6	4	57.1	1	25	-	-	-	-
Total	21	100.0	7	100.0	4	100	-	-	-	-

Table 9. Distribution of women with gynaecological cancers according to their 5-year survival in North Benin from 2010 to 2020 (n = 69).

	Uterine cervix		Uterine body		Ovary		Vulva		Vagina	
	n	%	n	%	n	%	n	%	n	%
Woman's view	11	25.0	2	16.7	1	12.5	-	-	1	25.0
Deceased woman	2	4.5	1	8.3	2	25.0	-	-	-	-
Lost woman	31	70.5	9	75.0	5	62.5	2	100.0	2	75.0
Total	44	100.0	12	100.0	8	100.0	2	100.0	3	100.0

4. Discussion

Data collection was based on an exhaustive census using a data processing form. As this study was retrospective, it did not allow us to highlight certain aspects of the management of GBC. This constitutes a limitation. We encountered certain difficulties during the collection process, namely the poor preservation of the files. Despite these limitations and difficulties, this study has enabled us to take stock of what is being done in the north of Benin in terms of the management of GBCs. It will therefore serve as a basis for making decisions improve this care.

Gynaecological and breast cancers (GBCs) affected the breast (55.2%), cervix (28.8%), corpus uteri (7.8%), ovary (5.2%), vulva (1.7%) and vagina (1.3%). The same observation was made by Hounkponou *et al.* and Tonato *et al.* in different proportions [5] [6]. Indeed, breast cancer represents the first cancer in women worldwide and in sub-Saharan Africa [1] [7] [8]. On the other hand, our results diverge from those of Obossou *et al.* and Sando *et al.* who found a predominance of cervical cancer [9] [10]. This difference can be explained by the fact that Obossou's study took place in the north of Benin and did not take into account all the cancer registers.

Radical mastectomy was performed in 89 women, 22 of whom were stage II, 48 stages III and 11 stages IV. This is in line with the ONCOGF recommendations due to our context, on the one hand, and the discovery of late clinical stages on the other. This same predominance was found by Zongo *et al.* in Burkina Faso and Twahir *et al.* in three different countries (Nigeria, Ghana and Kenya) in 45.68% and 64% to 67% of cases respectively. Radical mastectomy is still a primary option for the treatment of breast cancer in Africa while it is less practised in developed countries.

Lymph node dissection was exclusively the axillary surgery performed in women. The size of the tumours and the presence of lymph node metastasis could explain this high proportion. Chemotherapy was performed in 87 women. It was neoadjuvant in 50.6% of cases. Chemotherapy was performed at all stages. The neoadjuvant chemotherapy is more frequent because of the late discovery of the disease. Other authors have also pointed this out [11] [12] [13]. The protocol of doxorubicin + cyclophosphamide was widely used (72.60%) followed by Paclitaxel (12.60%). This is in line with ONCOGF recommendations which suggest that anthracycline-based chemotherapy with or without taxanes could be used. Trastuzumab-based targeted therapy was not used despite HER_2 positivity due to the inaccessibility and high cost of these molecules. The same observation was made by Elise N. in Côte d'Ivoire, who noted that even though treatments exist, few women manage to take them [14]. Hormone therapy is highly dependent on the results of immunohistochemistry. Of the 27 women who performed the IHC test, 11 were hormone receptor positive. This is the proportion that should receive hormone therapy according to the recommendations. It must be emphasised that our women are often wrongly given hormone therapy. The IHC test is crucial for the prescription of hormone therapy. The women received Tamoxifen

exclusively. The overall survival at five years was mostly not assessable (64.40%) and only 21.5% of women were seen in consultation. Indeed, a follow-up visit is recommended every 3 to 6 months for 3 years; every 6 to 12 months until 5 years and then annually. Awareness-raising among women is therefore necessary for a good follow-up. Among the 103 women concerned, 69 continued treatments, including 44 for cervical cancer, 12 for uterine cancer, 8 for ovarian cancer, 2 for the vulva and 3 for the vagina. Conization was performed in 2 women, extended colpohysterectomy in 10 women and radical hysterectomy without adnexectomy in 7 women. The lack of information about the different subtypes of stages I does not allow a good comparison between the ONCOGF recommendations and the treatments performed in the women. However, the treatments performed in this study are close to their recommendations for stages I in general. The treatment of choice is concomitant radio-chemotherapy. The absence of radiotherapy in our setting limits this choice and surgery has been used. The women had undergone an enlarged colpohysterectomy (Wertheim procedure) in 19 cases and a hysterectomy without adnexectomy in 6 cases. Our results are in agreement with those of Obossou *et al.* who reported that treatment was mainly surgical. Chemotherapy was administered in 4 women, 3 of whom were stages III and 1 stage IV. It was based on platinum salts and paclitaxel. An effort should be made to diagnose cervical cancer at an early stage for a better treatment option. According to the recommendations of the National Cancer Institute (NCI_a 2013), surgery is the primary treatment for endometrial cancer until the tumour has metastasised. In this study, hysterectomy with adnexectomy was the treatment performed at all stages. Only one woman in stage III had received paclitaxel-based chemotherapy (6 courses). Although radio-chemotherapy was indicated, it was not performed due to inaccessibility and exorbitant cost. Hysterectomy with adnexectomy was the surgical treatment performed in all 8 women with ovarian cancer. Only one woman in stage 3 had received Paclitaxel-based chemotherapy in addition to surgery. This is not consistent with ONCOGF recommendations which suggest chemotherapy for stages II, III and IV or stage I associated with grade 3. In this study 2 women with vulvar cancer were in stage II and had undergone total vulvectomy associated with lymph node dissection. This is in line with the ONCOGF recommendations. However, radiotherapy is also essential in the adjuvant treatment of this disease. For vaginal cancer, extended colpohysterectomy combined with lymph node dissection was performed in all three women. None of them received radiotherapy or chemotherapy. There is a real problem of limiting the care given to women. Of the 69 women who accepted the specific treatment, 55 women were put into surgery. Like the women with breast cancer, those with cervical cancer did not keep follow-up appointments (46/53). They were also lost to a follow-up (58.70%). The fact that women are lost to follow up in most cases poses a prognostic problem. This observation was also made by Tonato *et al.* and Obossou *et al.* in their respective series [5] [9]. As a result, overall survival at five years was mostly non-valuable (73.90%). Only 15

women were seen in consultation in 21.70% of cases.

5. Conclusion

Gynaecological and breast cancers (GBCs) are a public health problem in northern Benin due to their frequency and management. Breast and cervical cancers remain the most common cancers in women. Surgery has been the most common treatment option. Neither targeted therapy nor radiotherapy has been instituted. These treatments do not meet the standard of care for GBCs. Particular emphasis needs to be placed on primary and secondary prevention. A strengthening of the health care system by the state is also essential for the well-being of the female population of North Benin.

Conflicts of Interest

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

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