

Epidemiological, Diagnostic, Therapeutic Aspects of Cervical Cancer : Data from the Population-based Cancer Registry of the City of Parakou from 2017 to 2022

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ABSTRACT

Background: Cervical cancer remains a public health problem.

Objective: This study sought to describe the epidemiological, diagnostic and therapeutic aspects of cervical cancer using data from the population-based cancer registry of the city of Parakou from 2017 to 2022.

Method: This was a retro-prospective dynamic cohort study with descriptive purpose. The study covered the period from January 1st, 2017 to December 31th, 2022.

Result: A total of 101 patients were diagnosed with cervical cancer from 2017 to 2022 regardless of the evidence level. The age-standardized incidence rate was 25.6 cases per 100,000 person-years, while the mortality rate was 2.31 cases per 100,000 person-years. The mean age at diagnosis was 51.24 years \pm 12.63 years. Cervical cancer affected more householdwives (49.50%), illiterate (62.37%), menopausal women (65.35%) and multiparous women (84.16%). Cervical cancer was diagnosed clinically (36.63%) and histopathologically (63.37%). The most common histopathological type was squamous cell carcinoma (79.69%) followed by adenocarcinoma (15.63%). Conventional treatment was used by 54.46% of patients. Surgery (23.76%) and chemotherapy (8.91%) were also used.

Conclusion: Resources must be made available to ensure proper management of cervical cancer cases in Parakou.

Keywords: Gynecological cancer, Cervical cancer, Population-based cancer registry, Parakou

INTRODUCTION

Cervical cancer is the leading cause of cancer-related mortality in low- and middle-income countries [1], making it a public health issue. Persistent infection with Human Papillomavirus (HPV) is the main risk factor associated with cervical cancer [2]. The risk factors associated with HPV infection are closely linked to sexual behavior,

particularly unprotected sexual intercourse, which increases the risk of HPV infection. In Benin, in 2019, cervical cancer had an incidence rate of 14.9 per 100,000, ranking it second only to breast cancer with an incidence rate of 22.6 per 100,000 [3]. This dynamic is reversed, however, when it comes to mortality from cervical cancer. Indeed, this type of cancer is becoming the most deadly of all gynecological cancers. It is often diagnosed at an advanced stage (stages III and IV),

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making curative treatment impossible. This is all the more regrettable for an organ that is so accessible to exploration and treatment [3]. The establishment of population-based cancer registries plays an essential role in the collection and analysis of epidemiological data specific to each region, thus contributing to the understanding and fight against this devastating disease [4]. The city of Parakou recently set up a population-based cancer registry. We therefore initiated this study to review the epidemiological, diagnostic and therapeutic aspects of cervical cancer in the city of Parakou. This study sought to describe the epidemiological, diagnostic and therapeutic aspects of cervical cancer using data from the population-based cancer registry of the city of Parakou from 2017 to 2022.

MATERIALS AND METHODS

The study was carried out in the Parakou population, which is covered by the cancer registry. It was a retro-prospective dynamic cohort study with descriptive purpose. The study covered the period from January 1st, 2017 to December 31th, 2022. The study population consisted of all patients diagnosed with cervical cancer registered in the registry along the study period. These were patients diagnosed with cervical cancer at any evidence level (clinical, pathological and other Para clinical tests). The variables were related to the diagnosis of cervical cancer, patient sociodemographic data, patient's background, clinical data, imaging data, pathology data, treatment data and survival data. Since 2017, the population-based cancer registry of the city of Parakou has been collecting data on cancer. Data were collected using an active case- finding method. Data collection was carried out every 2nd months, through a visit to each of the public and private health facilities covered by the registry.

The registry uses population data from the fourth General Census of Population and Housing (Recensement General de la Population et de l'Habitat - RGPH4) to calculate cancer incidence. The standard case-reporting form developed by the African Network of Cancer Registries was used for case collection. In the present study, several data collection techniques (data mining and phone interviewing) were used to gather the various data required for the study. A tabulation sheet and a questionnaire were used to collect data. Part of the data collection form was based on data collected in the cancer registry, and additional information (socio-demographic, clinical and therapeutic data) was gathered from the patient's medical chart, which was not available in the cancer registry, after a visit to each patient's health facility. Active and passive follow-up methods were used to obtain patients' vital status. Once patients had been registered with the cancer registry, the date of last contact was modified each time the patient returned for appointments. Information on patient deaths was notified to the registry when the death was confirmed by the attending physician or through the patient's medical chart. Patients lost to follow-up whose vital status was unknown were contacted, or one of their parents was contacted, in order to collect this information. August 1, 2023 was taken as the study's cut-off date, after which the information gathered on the patient was no longer taken into account in the data analysis. Data entry was carried out using Epi Data software, French version 3.1. Data were consolidated, cleaned up and checked for internal consistency. Data were analyzed using R software version.

RESULT

A total of 101 patients were diagnosed with cervical cancer from 2017 to 2022 regardless of the evidence level.

Incidence of cervical cancer in Parakou

The raw incidence of cervical cancer was 11.0 cases per 100,000 inhabitants in the city of Parakou from 2017 to 2022, while the age-standardized incidence was 25.6 cases per 100,000 inhabitants.

Year of diagnosis and data sources

Cervical cancer was diagnosed in the majority of cases in 2019 (25.74%), with more data coming from public hospitals (96.04%).

Socio-demographic aspects of cervical cancer patients

In the present study, the mean age at diagnosis was 51.24 ± 12.63 years, with ranges of 25 years and 81 years. The age range between 40 and 55 years was predominant (43.56%). Patients were household wives (49.50%), married (82.18%) and mostly illiterate (62.37%).

Patient's background

Medical history included hypertension (23.76%), diabetes (6.93%) and HIV (0.99%). Patients were multigestational (4 or more pregnancies) in 88.11% and multiparous (4 or more deliveries) in 84.16%. Postmenopausal patients accounted for 65.35% of the total. Contraception was used by 8.91%, of whom 0.99% used oral contraception.

Diagnostic aspect

These patients consulted for pelvic pain (39.6%), metrorrhagia (41.58%), pathological leucorrhoea (21.78%), pelvic mass (8.91%), urinary symptoms (4.95%), hydrorrhea (2.97%), and constipation (1.98%).

On speculum examination, the cervix was the site of a budding tumor in 46.67% of cases, ulcero-necrotic in 33.33% and ulcero-budding in 20%.

Histopathology was performed in 63.37% of patients. The histological types found were squamous cell carcinoma (79.69%), adenocarcinoma (15.63%) and sarcoma (1.56%).

Abdomino-pelvic ultrasonography (18.81%) and thoraco-abdomino-pelvic Scan (5.94%) were performed as extension tests. Other examinations included abdominal X-ray without preparation (0.99%), renal ultrasonography (2.97%) and magnetic resonance imaging (0.99%).

At the end of clinical and Para clinical examination, patients were classified according to the stages of the International Federation of Gynecology-Obstetrics. Stage 1 was found in 12.87%.

Stage 2 in 11.88%, stage 3 in 6.93%, stage 4 in 12.87%. In 55.44%, the stage was not specified.

Therapeutic aspect

The majority of the participants received conventional treatment (54.46%). Chemotherapy was based on the cisplatin + paclitaxel protocol.

Survival aspect

As of August 1st 2023, 33 participants (32.67%) were alive; 50 (49.50%) had died, representing a mortality rate of 2.31

per 100,000 inhabitants. The remaining 18 patients (17.82%) were lost to follow-up.

Table 1: Distribution of participants according to year of diagnosis and data sources.

Years	Size	Percentage
2017	16	15.84
2018	17	16.83
2019	26	25.74
2020	8	7.92
2021	12	11.88
2022	22	21.78
Data sources		
CHUD/B*	82	81.19
Saint Jean de Dieu Hospital of Tanguieta	8	7.92
Parakou Army Training Hospital	7	6.93
Private clinics	4	3.96

*CHUD/B: Centre Hospitalo-Universitaire et Départemental du Borgou (Departmental University Teaching Hospital of Borgou)

Table 2: Distribution of participants by age group, occupation, marital status and education level.

Age (year)	Size	Percentage
[25 years-40 years]	16	15.84
[40 years-55 years]	44	43.56
[55 years-60 years]	9	8.91
60 years and over	32	3.68
Occupation		
Household wife	50	49.5
Shopkeeper	27	26.73
Craftswoman/Farmer/Breeder	11	10.89
Not specified	7	6.93
Civil servant	6	5.94
Marital status		
Married	83	82.18
Widow	9	8.91
Single/Divorced	2	1.98
Not specified	6	5.94
Education level		
Out of school	63	62.37
Primary	25	24.75
Superior	9	8.91
Secondary	4	3.96

Table 3. Distribution of participants according to the treatment received.

Treatment	Size	Percentage
Traditional	55	54.46
Surgery	24	23.76
Symptomatic	12	11.88
Chemotherapy	9	8.91
Chemotherapy + surgery	1	0.99
Chemotherapy molecules (n=10)		

Cisplatin	10	100
Paclitaxel	10	100

DISCUSSION

Our study reveals an age-standardized incidence rate of cervical cancer in Parakou from 2017 to 2022 of 25.6 cases per 100,000 person-years. In 2019, the first population-based cancer registry in Benin, i.e. the one of Cotonou reported an incidence rate of 14.9 per 100,000 person-years [3]. In Morocco, the rate was 13 per 100,000 person-years [5]. Developed countries recorded incidence rates below ours. Indeed, incidence rates of 7.8 and 6.18 in Martinique and Korea, respectively [6,7]. This high incidence of cervical cancer is thought to be due to late detection of precancerous cervical lesions. All women should be screened for precancerous lesions from the first year of their genital activity, although in the present study, women aged 40 and over were the most represented (84.15%). Since 2021, Parakou has had a cervical precancer lesions screening program called "Dépister et Traiter" (Screen and Treat). This program screens women free of charge. When they have pre-cancerous lesions, treatment is carried out immediately and free of charge. In 2023, screening methods were improved with the integration of HPV testing. This program has come at the right time to reduce the high incidence of cancer in Parakou. The real problem remains women, who must also take an interest in this program for their own good. Lack of screening leads to the diagnosis of cervical cancer at an advanced age, since precancerous lesions of the cervical cancer can take up to 15 years to 20 years to progress to a cancerous stage.

In our study, the most frequently represented age category was 40 years-55 years. The mean age at diagnosis was 51.24 years \pm 12.63 years. Several authors have reported the same age ranges at diagnosis [5,8]. In addition, 12.87% of cervical cancers in Parakou were diagnosed at stage IV. Although these rates were underestimated due to the lack of information on stage in the charts and the absence of imaging (55.44%), the advanced stage of the cancer at the time of diagnosis remains worrying. Bagna *et al* [9] went further, reporting that in Benin, most cancers were diagnosed at an advanced stage (Stage III and Stage IV) in 65% of cases. Several African studies had reached similar findings [10-12]. Could the taboo surrounding sexuality in Africa be the cause of late cancer diagnosis? Could it be that cervical cancer is a "shameful disease" in Africa? Studies in this area are needed to identify early on the causes of late referral of women with cervical cancer to hospital.

The most frequent histopathological type in the present study was squamous cell carcinoma in 79.69%. It was followed by adenocarcinoma in 15.63%.

Mapoko *et al* reported the following same results: squamous cell carcinoma 85.6% and adenocarcinoma 7.7% [13]. These findings are consistent with the literature, which indicates that squamous cell carcinoma accounts for around 85%-90% of all cervical cancers.

The curative treatment of cervical cancer requires a variety of approach, including therapeutic options such as surgery, external radiation therapy, brachytherapy, neoadjuvant chemotherapy or chemotherapy concomitant with radiation therapy. The financial cost of the treatment of cervical cancer is huge. The majority of patients in our study consulted herbalists as first-line treatment (54.46%). Poor cancer treatment is a major cause of high morbidity and mortality in Benin [14]. The practice of herbalists should be monitored by the relevant authorities. They should be made aware of the need to refer cancer cases to specialized cancer care centers. The corollary of this will be early treatment of women with cervical cancer.

Of the 101 patients in our series, 23.76% underwent surgery only, including colpohysterectomy and total hysterectomy. Osok *et al* in Kenya reported a 13.7% rate of total hysterectomy. Suh *et al*, on the other hand, reported 61.4% surgery in the Korean cancer registry [7,15].

Chemotherapy aims at reducing tumor size and controlling tumor growth. It was administered to only 8.91% of patients in our series. This result is lower than that found by Suh *et al*. in 2023, who reported 33.1% chemotherapy in patients with cervical cancer [3]. This low rate in our study can be explained by the absence of a medical oncologist in the town of Parakou. Moreover, anticancer drugs are not available in any pharmacy. To obtain supplies, you have to order from Cotonou, nearly 700 km from Parakou. Added to all this is the lack of financial means of patients and their families. All this is an obstacle to the start-up of chemotherapy in Parakou. The problem is the same for radiation therapy; none of our patients has been able to benefit from radiation therapy, as Benin has no radiation therapy center [16]. The management of advanced cases of cervical cancer is a real problem in Benin. Authorities at various levels should invest much more in cancer care in Benin.

CONCLUSION

The population-based cancer registry of Parakou highlights the different aspects of cervical cancer. The incidence of cervical cancer is high in Parakou. Women aged 50 and over were the most affected by this disease.

They were menopausal, multiparous. The frequent reasons for consultation were metrorrhagia and pelvic pain. Diagnosis was made based on clinical and histopathological checks up. Cervical cancer treatment in Parakou suffers from many shortcomings. The road to quality cervical cancer treatment is long and difficult. The Beninese government should invest more in cervical cancer care in Parakou.

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