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Management of Non-Localized Cervical Cancers at the Dakar Cancer Institute: A Study of 407 Cases

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Abstract

Objectives: Non-localized cervical cancers include all malignant cervical tumors classified between IB3 and IV according to the FIGO classification. The objective of our study was to describe the management of these cancers at the Dakar Cancer Institute. **Materials and Methods:** This was a retrospective study conducted over a four-year period, including all histologically diagnosed cases of non-localized cervical cancer. **Results:** During the study period, 407 patient records were analyzed. The mean age of patients was 53.5 ± 11.2 years. Among them, 331 (81.3%) were married, and 373 (91.6%) were grand multiparas. Metrorrhagia was present in 342 patients (83.9%). FIGO stage IIb was the most frequent (98 cases, 24.1%), and the predominant histological type was squamous cell carcinoma (383 cases, 94.1%). All patients received neoadjuvant chemotherapy, primarily with a carboplatin-taxol regimen (396 cases, 97.3%), with a complete response observed in 225 patients (55.3%). Adjuvant treatment consisted of exclusive radiotherapy for 245 patients (60.2%), with an estimated three-year survival rate of 30%. Prognostic factors identified in multivariate analysis included parametrial involvement ($p = 0.005$), chemotherapy regularity ($p = 0.013$), and response to chemotherapy ($p < 0.001$). **Conclusion:** The management of non-localized cervical cancers primarily relies on radio-chemotherapy. In our context, the use of neoadjuvant chemotherapy remains essential.

Keywords

Cancer, Cervical Cancer, Diagnosis, Treatment

1. Introduction

Cervical cancer is a major public health issue, particularly in developing countries, where it is one of the leading causes of female mortality. According to the World Health Organization (WHO), this pathology is the fourth most common cancer among women worldwide, with approximately 90% of deaths occurring in low- and middle-income countries. In Senegal, local studies indicate a high incidence, with significant mortality due to late diagnosis and limited access to care [1] [2].

In contexts where diagnosis is often delayed, most patients present at an advanced stage of the disease, characterized by metrorrhagia, pelvic pain, and general deterioration. The FIGO (International Federation of Gynecology and Obstetrics) classification is used to assess tumor extension and guide therapeutic management. Non-localized cervical cancers, corresponding to stages IB3 to IV, are defined by loco-regional spread and extension to adjacent organs, with or without distant metastases [3].

At the Dakar Cancer Institute, a reference center for gynecological cancer management, treatment is based on a multimodal approach combining neoadjuvant chemotherapy and radiotherapy. Despite these therapeutic strategies, patient prognosis remains concerning, with limited overall survival, highlighting the importance of improving prevention, screening, and management strategies [4].

In this context, the present retrospective study aims to evaluate the management of non-localized cervical cancers at the Dakar Cancer Institute. By analyzing data from 407 patients treated over four years, we seek to identify prognostic factors and potential improvements to current therapeutic protocols. This analysis is part of a broader effort to optimize care quality and reduce mortality associated with this pathology, drawing on experiences and recommendations from international research.

2. Patients and Methods

This was a retrospective descriptive and analytical study involving all patients diagnosed with histologically confirmed non-localized cervical cancer and treated at the Dakar Cancer Institute.

The Dakar Cancer Institute is a reference center with a triple mission: care, teaching, and research. It is at the top of the healthcare pyramid for cancer management, with an average of 3,500 annual consultations. The facility has 25 inpatient beds distributed across three units:

(1) A surgical oncology unit specializing in gyneco-mammary, digestive, and soft tissue and skin pathologies;

(2) A radiotherapy unit;

(3) A medical oncology unit.

The study covered a four-year period, from January 2017 to December 2020. We included patients with histologically confirmed cervical cancer whose FIGO

stage was greater than IB2. We excluded patients without histologically confirmed cancer, those with a FIGO stage lower than IB2. The missing data were handled using a combination of multiple imputation and sensitivity analysis. An exhaustive recruitment of records meeting the inclusion criteria was conducted during the study period.

The variables studied included:

(1) Sociodemographic data: age, marital status, parity, contraceptive use.

(2) Clinical and pathological data: medical history, family history of cancer, symptoms, tumor size, vaginal extension, parametrial involvement, MRI findings, FIGO stage, histological type.

(3) Therapeutic management: treatment modalities.

(4) Prognosis: three-year survival.

Quantitative variables were expressed as mean ± standard deviation, and qualitative variables as proportions. Data were entered and analyzed using SPSS version 21. The chi-square or Fisher's exact tests were used to compare qualitative variables. Statistical significance was set at p-values below 0.05. Microsoft Word and Excel from Office 2016 were used for data entry and presentation in tables and descriptive and correlational figures. Survival was estimated using the Kaplan-Meier method.

3. Results

During the study period, 407 patient records were collected. The mean age of patients was 53.5 ± 11.2 years, ranging from 27 to 87 years, with the 50 - 60 age group representing 134 cases (32.9%) (**Figure 1**). Among them, 331 (81.3%) were married, and 373 (91.6%) were grand multiparas (**Table 1**). Early menarche was noted in 286 patients (70.3%), HIV positivity in 5 patients (1.2%), and a family history of cancer in 5 patients (1.2%), including one case of cervical cancer (0.2%).

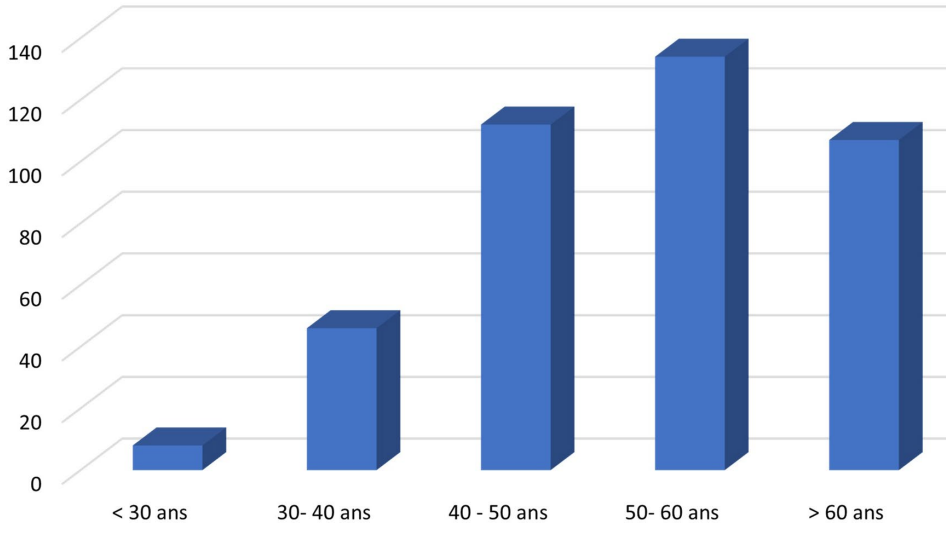

Figure 1. Distribution of the 407 patients according to age group.

Table 1. Distribution by parity and marital status.

Marital Status	Number	Percentage
Married	331	81.3%
Widowed	69	17%
Parity		
Grand multiparous	373	91.6%
Primiparous	30	7.4%

The main symptoms at presentation were metrorrhagia in 342 patients (83.9%), followed by hydrorhea in 148 patients (36.3%). Tumor size exceeded 4 cm in 398 patients (97.8%), the lower third of the vagina was affected in 204 patients (58.1%), and parametrial involvement was observed in 318 patients (78.1%). MRI was performed in 61 patients (15%). FIGO stage IIb was the most common (98 patients, 24.1%), followed by stage IIIA (77 patients, 18.9%). The predominant histological type was squamous cell carcinoma (383 cases, 94.1%) (Table 2).

Table 2. Distribution by diagnostic modalities.

Reason for Consultation	Number	Percentage
Metrorrhagia	342	83.9 %
Hydrorrhea	148	36.3 %
Pelvic pain	70	17.2 %
Stade FIGO		
IIB	98	24.1%
IIIA	77	18.9%
IV B	61	14.9%
Histological type		
Carcinome épidermoïde	383	94.1%
Adénocarcinome	23	5.7%
Carcinome adénosquameux	1	0.2%

All patients received neoadjuvant chemotherapy (100%), with regular administration in 342 patients (84%), primarily using a carboplatin-taxol protocol (396 cases, 97.3%). A complete response was observed in 225 patients (55.3%). Adjuvant treatment consisted of exclusive radiotherapy for 245 patients (60.2%), followed by concomitant radio-chemotherapy in 158 cases (38.9%). The remission rate was 54.8% (Table 3).

Table 3. Distribution by Treatment and Evolution.

Treatment Response	Number	Percentage
Complete	225	55.3%

Continued

Partial	101	24.8%
None	72	17.7%
Adjuvant Treatment		
Radiotherapy (RTE)	245	60.2%
Concomitant Radio-Chemotherapy (RCC)	158	38.9%
Surgery	04	0.9%
Evolution		
Remission	259	63.6%
Recurrence	130	31.9%
Death	18	4.5%

Prognostic factors identified in multivariate analysis included parametrial involvement ($p = 0.005$), chemotherapy regularity ($p = 0.013$), and response to chemotherapy ($p < 0.001$). The three-year survival rate was estimated at 30%. Mean survival after radiotherapy was 14.52 months (95% confidence interval: 13.06 - 15.97 months), after concomitant radio-chemotherapy was 14.53 months (95% CI: 12.68 - 16.37 months), and after surgery was 12.50 months (95% CI: 2.3 - 22.7 months) (Figure 2). No statistically significant difference was noted between these treatments.

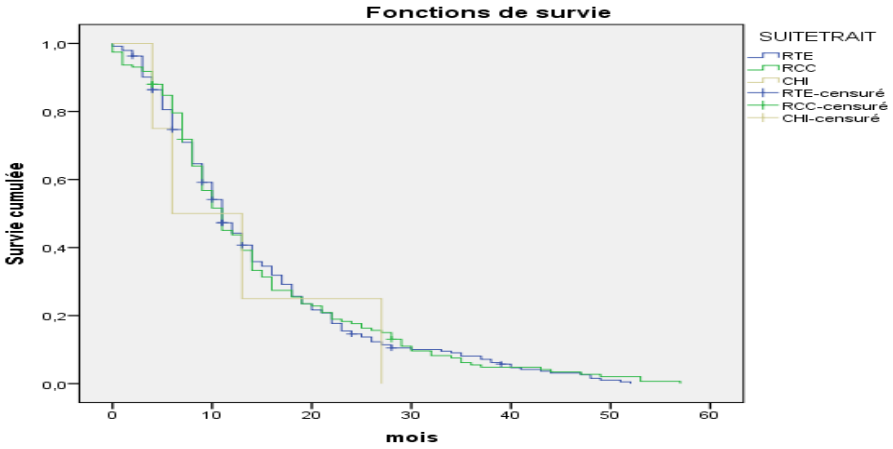

Figure 2. Survival curve of the 407 patients.

4. Discussion

Mean age and marital status: The mean patient age of 53.5 years aligns with studies showing that cervical cancer is often diagnosed in middle-aged women [5] [6]. The high proportion of married patients (81.3%) suggests a history of sexual activity, a known risk factor for HPV infection, the primary cause of this cancer [7]. The high number of grand multiparas (91.6%) may indicate prolonged exposure to hormonal and sexual risk factors [8].

Clinical symptoms: Metrorrhagia was present in 83.9% of patients, a frequent early sign of cervical cancer, particularly in advanced stages [9] [10].

FIGO stage IIb: The predominance of stage IIb cases (24.1%) indicates significant local progression without distant metastases, complicating treatment but still allowing remission with aggressive therapy [11].

Histological type: Squamous cell carcinoma (94.1%) was the most common, consistent with global data linking this type to HPV infection [12].

Neoadjuvant chemotherapy: All patients received neoadjuvant chemotherapy, with a 55.3% complete response rate, demonstrating its effectiveness even in advanced stages [13] [14].

Adjuvant radiotherapy: Radiotherapy was used in 60.2% of cases, playing a crucial role in advanced stages where surgery alone is insufficient [15].

The three-year survival rate of 30% reflects the aggressive nature of non-localized cervical cancers but is comparable to similar contexts, demonstrating the feasibility of effective treatment despite resource limitations [16].

Our results show that parametrial involvement, chemotherapy regularity, and tumor response to chemotherapy are significant prognostic factors in the management of cervical cancer.

Parametrial involvement is recognized as a poor prognostic factor, significantly influencing both recurrence-free survival and overall survival. A study demonstrated that patients with parametrial invasion had a higher probability of relapse and a significant decrease in the 5-year survival rate [17]. This finding highlights the need for precise assessment of tumor extension to better tailor therapeutic strategies.

Chemotherapy regularity is a key element in optimizing treatment outcomes. Interruptions in chemotherapy administration have been associated with a reduced tumor response and an increased risk of disease progression [18]. Strict adherence to the therapeutic schedule maximizes the cytotoxic effects of anticancer agents and minimizes the risk of tumor resistance.

Finally, response to chemotherapy is a critical prognostic factor. A recent study revealed that adding neoadjuvant chemotherapy before chemoradiotherapy significantly improves overall survival in patients with locally advanced cervical cancer. This approach increased life expectancy by 39% and delayed cancer recurrence by 35% [19]. Our findings align with these data, confirming that patients with a good tumor response to chemotherapy have a better prognosis.

Our study has several limitations. First, it is a retrospective study, which may introduce biases in data collection, particularly regarding missing or incomplete information in medical records. Additionally, the study duration is limited to four years, which may not reflect long-term trends. The overrepresentation of certain clinical variables (such as metrorrhagia) could also lead to selection bias, as these symptoms are often associated with advanced stages of the disease. Finally, due to the limited resources available at the Cancer Institute of Dakar, the treatment of some patients may have differed from the standard protocols recommended in better-resourced settings

5. Conclusion

The management of non-localized cervical cancer at the Dakar Cancer Institute relies mainly on radio-chemotherapy. Despite relatively low survival rates, this therapeutic approach remains crucial in our setting. Continuous efforts are needed to improve clinical outcomes and patient quality of life.

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Conflicts of Interest

The authors declare no conflicts of interest related to this study.

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