CLINICAL AND EPIDEMIOLOGICAL PROFILE OF WOMEN WITH UTERINE CANCER IN THE WESTERN REGION OF PARÁ STATE

PERFIL CLÍNICO-EPIDEMIOLÓGICO DE MULHERES COM CÂNCER UTERINO DA REGIÃO OESTE PARAENSE

PERFIL CLÍNICO-EPIDEMIOLÓGICO DE MUJERES CON CÁNCER UTERINO DE LA REGIÓN OESTE DE PARÁ

Juliana Farias Vieira[1], Zaline de Nazaré Oliveira de Oliveira[2], Raiane Cristina Mourão do Nascimento[3], Rafaela de Souza Santos Carvalho[4], Itamara Rodrigues Moura[5], Amanda Maria Vieira Pinto[6], Sheyla Mara Silva de Oliveira[7], Franciane de Paula Fernandes[8]

ABSTRACT

Introduction: The National Institute of Agrarian Reform (INCA) estimated a risk of 20.48 new cases of cervical cancer per 100,000 women in northern Brazil by 2023. In the state of Pará, the estimated 2023 number of new cases of cervical cancer and 80 new cases of uterine and endometrial cancers is approximately 830. This study aims to analyze the clinical and epidemiological profile of women with uterine cancer living in the western region of Pará. Methodology: This is a cross-sectional, quantitative, and descriptive epidemiological study. The absolute and relative frequencies of recorded clinical outcomes were analyzed, contingency tables were constructed, and association tests were applied using Pearson's chi-square test. Results/Discussion: Most women are from Santarém, are mixed race, married, and have a primary education, and the most prevalent diagnosis was cervical cancer. At diagnosis, most were classified as stage III, and the most commonly used treatment was radiotherapy. The delay in starting treatment is more related to the diagnosis of cervical cancer and in women from cities further away from Santarém. Conclusion: This study concludes that there is a longer delay in starting oncological treatment for uterine cancer in

[1] Master of Science in Nursing. Universidade do Estado do Pará (UEPA). E-mail: julifavie@outlook.com
ORCID: https://orcid.org/0000-0002-6139-1143 Lattes: http://lattes.cnpq.br/1794319740268267
[2] Master's student in Nursing. Universidade do Estado do Pará (UEPA). E-mail: zalinenooliveira@hotmail.com
ORCID: https://orcid.org/0000-0001-7083-4973 Lattes: http://lattes.cnpq.br/6181810360624237
[3] Maternal and Child Nurse. Universidade Federal do Pará (UFPA). E-mail: raiani-13@hotmail.com
ORCID: https://orcid.org/0000-0002-7306-9258 Lattes: http://lattes.cnpq.br/4234588061806258
[4] Maternal and Child Nurse. Universidade Federal do Pará (UFPA). E-mail: rafaelacarvalho137@gmail.com
ORCID: https://orcid.org/0000-0001-7917-9979 Lattes: http://lattes.cnpq.br/7618789071709297
[5] Master of Science in Nursing. Universidade do Estado do Pará (UEPA). E-mail: itamaranurse@gmail.com
ORCID: https://orcid.org/0000-0003-3741-869X Lattes: http://lattes.cnpq.br/5779935899651164
[6] Intensive Care Resident. Universidade do Estado do Pará (UEPA). E-mail: amandamarviepsi@gmail.com
ORCID: https://orcid.org/0009-0001-7630-9341 Lattes: http://lattes.cnpq.br/7679690036206120
[7] Post-Doctorate in Health Sciences. Universidade do Estado do Pará (UEPA).
E-mail: sheylaoliveira@uepa.br ORCID: https://orcid.org/0000-0001-6666-2363
Lattes: http://lattes.cnpq.br/2221474227499391
[8] Post-Doctorate in Health Sciences. Universidade do Estado do Pará (UEPA).
E-mail: franciane.fernandes@uepa.br ORCID: https://orcid.org/0000-0002-4617-1919
Lattes: http://lattes.cnpq.br/8840851253152352

women who live far from Santarém. Furthermore, most women are admitted to the health service with locally advanced disease, which can further delay the time to treatment initiation.

Keywords: Uterine Cancer. Epidemiology. Amazon. Nursing.

RESUMO

Introdução: O INCA estimou para o ano de 2023 o risco de 20,48 novos casos de câncer de colo uterino a cada 100 mil mulheres nortistas. No Estado do Pará, a estimativa de 2023 é de aproximadamente 830 novos casos de câncer de colo de útero, e 80 novos casos de câncer de corpo de útero e de endométrio. O presente estudo objetiva analisar o perfil clínico e epidemiológico de mulheres com câncer uterino residentes na região oeste paraense. Metodologia: Trata-se de um estudo epidemiológico, transversal de abordagem quantitativa com objetivo descritivo. Foram analisadas as frequências absolutas e relativas dos desfechos clínicos registrados, bem como foram construídas tabelas de contingência e aplicados testes de associação utilizando o teste do qui-quadrado de Pearson. Resultados/Discussão: A maioria das mulheres é proveniente de Santarém, pardas, casadas, ensino fundamental, e o diagnóstico mais prevalente foi o câncer de colo do útero. No ato do diagnóstico a maioria foi classificada com estadiamento III, o tratamento mais utilizado foi a radioterapia associada. A demora no início do tratamento está mais relacionada ao diagnóstico do câncer de colo uterino e em mulheres provenientes de cidades mais distantes de Santarém. Conclusão: O presente estudo conclui que existe maior demora para o início do tratamento oncológico do câncer uterino sofrido por mulheres que residem longe da cidade de Santarém. Ademais, a maioria das mulheres são admitidas no serviço de saúde com a doença localmente avançada o que pode protelar ainda mais esse intervalo de tempo até o início.

Palavras-chave: Câncer Uterino. Epidemiologia. Amazônia. Enfermagem.

RESUMEN

Introducción: El Instituto Nacional de Reforma Agraria (INCA) estimó un riesgo de 20,48 casos nuevos de cáncer de cuello uterino por cada 100.000 mujeres en el norte de Brasil para 2023. En el estado de Pará, el número estimado de 2023 de nuevos casos de cáncer de cuello uterino y 80 nuevos casos de cánceres de útero y endometrio es de aproximadamente 830. Este estudio tiene como objetivo analizar el perfil clínico y epidemiológico de las mujeres con cáncer de útero que viven en la región oeste de Pará. Metodología: Este es un estudio epidemiológico transversal, cuantitativo y descriptivo. Se analizaron las frecuencias absolutas y relativas de los resultados clínicos registrados, se construyeron tablas de contingencia y se aplicaron pruebas de asociación mediante la prueba de chi-cuadrado de Pearson. Resultados/Discusión: La mayoría de las mujeres son de Santarém, son mestizas, casadas y tienen educación primaria, y el diagnóstico más prevalente fue el cáncer de cuello uterino. En el momento del diagnóstico, la mayoría fueron clasificadas como estadio III, y el tratamiento más utilizado fue la radioterapia. El retraso en el inicio del tratamiento está más relacionado con el diagnóstico de cáncer de cuello uterino y en mujeres provenientes de ciudades más alejadas de Santarém. Conclusión: Este estudio concluye que existe un mayor retraso en el inicio del tratamiento oncológico para el cáncer de útero en mujeres que viven lejos de Santarém. Además, la mayoría de las mujeres ingresan al servicio de salud con enfermedad localmente avanzada, lo que puede retrasar aún más el inicio del tratamiento.

Palabras clave: Cáncer de Útero. Epidemiología. Amazonía. Enfermería.

1 INTRODUCTION

High-risk human papillomavirus (HPV) is related to about 99% of cervical cancer (CC) cases. Although most infections are transient, when persistent, it can take an average of 15 years to develop intraepithelial neoplasia and ultimately invasive cancer. Despite being one of the most prevalent types of cancer in the world, CC is considered to have a high potential for prevention and cure, second only to non-melanoma skin cancer (INCA, 2022, p. 45).

The cervical tumor is initially asymptomatic, causing many women not to seek treatment in the initial phase. The clinical presentation depends exclusively on the extent of the disease, the more progressive, the more symptoms and among these may be present: metrorrhagia, leucorrhoea with a serosanguineous appearance, with a foul odor, postcoital bleeding, pelvic pain, among others. As the disease progresses, there may be metastases to the rectum, bladder and ureters, distant involvement may occur mainly through the lymphatic route (Febrasgo, 2017, p. 14).

In Brazil, cervical cancer (CC) is the third most common type of cancer among Brazilian women. In 2023, the Ministry of Health estimated more than 17 thousand new cases, representing a risk of 13.25 cases per 100 thousand women (Ministry of Health, 2023, p. 5).

Excluding non-melanoma skin tumors, uterine body cancer ranks 17th among the most frequent types of cancer. In women, it is the seventh most incident cancer. In terms of mortality in Brazil, in 2020, there were 1,944 deaths, and the crude mortality rate from uterine body cancer was 1.80 per 100 thousand women (INCA, 2022, p. 55).

Endometrial cancer (EC) or endometrial cancer, is classified as endometrioid or non-endometrioid, the latter represents about 20% of EC cases and is characterized by a higher rate of extrauterine spread and worse prognosis. It is the second most common gynecological cancer in the world (Tang; Hu; Li, 2023, p. 1).

FB screening is done through gynecological examination and ultrasound, however, in most cases, this exam identifies the disease in the most advanced stages, and early diagnosis is difficult in the absence of symptoms. As for symptoms, abnormal vaginal bleeding (in 90% of cases), pelvic pain, palpable pelvic mass, weight loss, and leukorrhea may occur. During screening, it is of paramount importance to perform an accurate anamnesis in order to investigate personal and family history and lifestyle habits. Some risk factors are linked to the diagnosis of FB: obesity, sedentary lifestyle, nulliparity, diabetes, systemic arterial

hypertension, hyperestrogenism, and polycystic ovary syndrome (Moraes, et al, 2023, p. 1078).

Endometrial cancer appears in third place among the most incident gynecological cancers among Brazilian women. It is estimated that between the years 2020 and 2022, there were about 6,500 cases of this type of neoplasm, and approximately 1,800 deaths in 2020 due to this disease. Studies point to an upward trend in cases, mainly related to obesity and aging, factors inherent to the development of FB (Paulino and Melo, 2023, p. 402).

In the estimate for the year 2023, INCA considered CE among the other types of uterine body cancer, bringing an incidence of 2.67 per 100 thousand women in the northern region. In the State of Pará, INCA estimated approximately 830 new cases of cervical cancer in 2023, and 80 new cases of uterine body cancer also in 2023 (INCA, 2022, p. 55).

Regarding the epidemiology of uterine cancer in the Amazon region, several studies point to the high incidence of cervical cancer among northern women, corroborating the updated data from INCA on the numbers of cervical cancer in the northern region of Brazil. The Ministry of Health estimated for the year 2023 a risk of 20.48 new cases per 100 thousand northern women, a very high risk compared to the national average of 13.25 per 100,000 Brazilian women (Amaral, et al, 2024, p. 6397; Barroncas, et al, 2024, p. 2; INCA, 2022, p. 45).

Unfortunately, there is a great lack of scientific research to discuss the epidemiology of endometrial and uterine body cancer in the northern region of the country. Therefore, the present study aims to discuss cases of uterine cancer, including cervix, uterine body, and endometrial cancer in women living in the western region of Pará.

2 METHODOLOGY

This is an epidemiological, cross-sectional study with a quantitative approach with a descriptive objective. As for the procedures, this is a data collection research carried out through the collection of electronic medical records from a reference hospital in the field of oncology, located in the interior of the state of Pará. The data collection period took place between the months of December 2024 and February 2025, the sampling technique was for convenience, and due to this, the time frame established was between the years 2012 and 2024.

Data analysis is descriptive and inferential statistics, carried out using IBM SPSS Statistics version 20.0 and Microsoft Excel 2021 software. The present study was accepted

by the Research Ethics Committee of the State University of Pará under opinion number 6,869,047.

To identify the cure and mortality rate among women diagnosed with uterine cancer, the absolute and relative frequencies of the clinical outcomes recorded were analyzed, categorized as: discharge due to cure, death, abandonment, and ongoing treatment. Cure and mortality rates were calculated based on cases with known outcome, excluding records of patients still under treatment or with missing information. To evaluate possible associations between outcomes and clinical variables, such as tumor staging, type of metastasis, and treatment modality, contingency tables were constructed and association tests were applied using Pearson's chi-square test. The level of significance adopted was <0.05. All statistical analyses were performed using the IBM SPSS Statistics software, version 20.0.

3 RESULTS

A total of 374 medical records of patients with cervical cancer (302), endometrial cancer (25) and uterine body cancer (2) were collected. Of the total, 21 were excluded because they did not contain the date of diagnosis, 13 medical records were excluded because they did not include the year of diagnosis, 4 were excluded because they were too short, 4 were excluded because they were not included in the year of diagnosis, 4 were excluded because they did not contain the year of diagnosis, 4 were excluded because they did not contain the year of diagnosis. The final sample totaled 329 medical records.

Table 1 presents the distribution of sociodemographic characteristics of women diagnosed with uterine cancer. Most patients were diagnosed with cervical tumors (88.6%), while cases of endometrial tumors accounted for 7.3%, and those of the uterine body, 0.6%. The most frequent ethnicity was brown, totaling 89.1% of women, followed by white (3.2%) and black (1.5%), with a percentage of 4.4% of records without information. Regarding education, 42.8% of the patients had elementary education, while 27.3% had secondary education, and 19.4% did not have this information in the medical records. Regarding origin, Santarém concentrated the highest number of cases (46.0%), followed by the municipalities of "Others" (32.3%), Oriximiná (7.0%) and Juruti (5.3%). Regarding marital status, almost half of the patients were married (46.9%), and 36.7% declared themselves single. The chi-square tests performed for all variables indicated statistically significant differences between the categories analyzed ($p < 0.001$).

Table 1

Distribution of sociodemographic characteristics of women diagnosed with uterine cancer treated at a public hospital in the Amazon region of Pará. Santarém – PA, 2012-2024

Variable	Category	Absolute frequency	Relative frequency (%)	p
Type of cancer	Not informed	12	3.5	0.0001
	Cervical tumor	302	88.6	
	Uterine body tumor	2	0.6	
	Endometrial tumor	25	7.3	
Ethnicity	Yellow	4	1.2	<0.001
	White	11	3.2	
	Indigenous	1	0.3	
	Negress	5	1.5	
	Not informed	15	4.4	
	Brown	304	89.1	
Schooling	Illiterate	14	4.1	<0.001
	Elementary School	146	42.8	
	Middle school	93	27.3	
	Higher education	20	5.9	
	Not informed	66	19.4	
	Postgraduate studies	2	0.6	
Origin	Itaituba	17	5.0	<0.001
	Juruti	18	5.3	
	Monte Alegre	15	4.4	
	Oriximiná	24	7.0	
	Other	110	32.3	
	Santarém	157	46.0	
Marital status	Married woman	160	46.9	<0.001
	Divorced	10	2.9	
	Not informed	20	5.9	
	Single	125	36.7	
	Widow	26	7.6	

Source: Data collected by the researcher. Santarém, 2025.

Figure 1 shows the percentage distribution of tumor staging according to the type of uterine cancer diagnosed among the patients treated. It is observed that cervical cancer concentrates the highest proportion of cases in advanced stages, especially in stages III and IV. On the other hand, endometrial and uterine body cancers have a higher frequency of cases diagnosed in early stages. This distribution suggests a distinct pattern at the time of diagnosis, according to the subtype of uterine cancer, reflecting possible differences in the clinical course, access to early diagnosis, and symptomatic presentation of patients.

Figure 1

Percentage distribution of tumor staging according to type of uterine cancer. Santarém – PA, 2012-2024
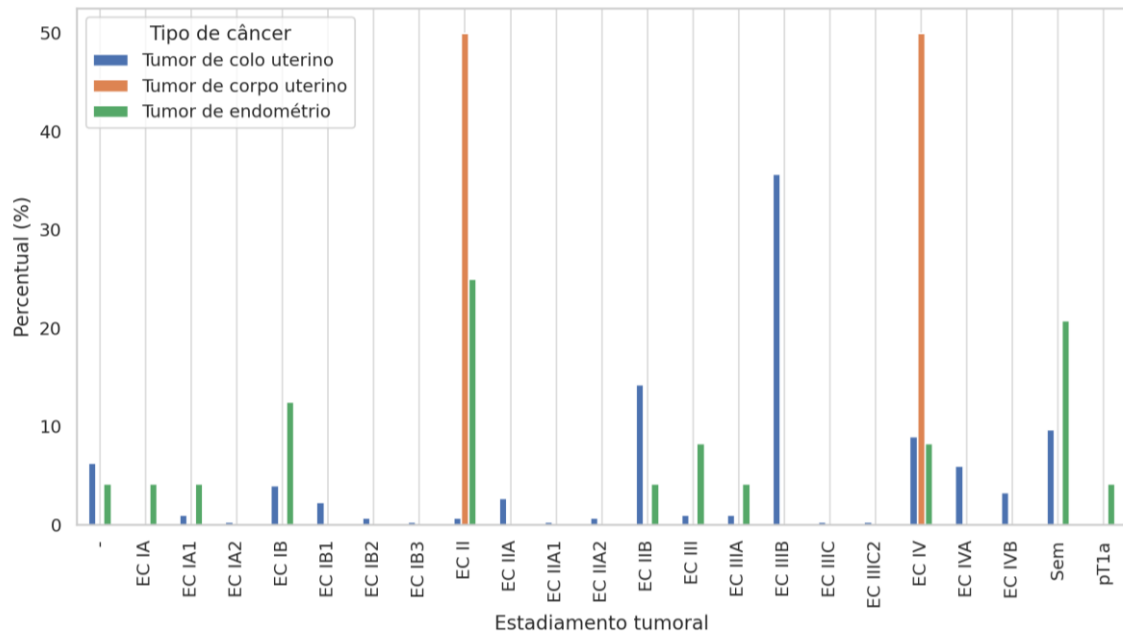
Source: Data collected by the researcher. Santarém, 2025.

Table 2 presents the treatment modalities grouped among women with uterine cancer. It is observed that the most common approach was radiotherapy associated with other therapeutic modalities, corresponding to 48.1% of the cases. Subsequently, hysterectomy associated with other treatments was recorded in 34.9% of the patients. Chemotherapy alone or combined with palliative care was less frequent (6.5%), as well as cases in which there was no cancer treatment (5.9%). Records without information about treatment were also identified (3.5%) and a small group of patients received other unspecified combinations (1.2%). Statistical analysis of Pearson's chi-square test indicated significant differences in the distribution of treatment categories ($p < 0.001$).

Table 2

Treatment modalities grouped among women with uterine cancer treated at a public hospital in the Amazon region of Pará. Santarém – PA, 2012-2024

Type of treatment	Frequency	%	p
Associated radiotherapy (RT + others)	164	48,1%	<0.001
Associated hysterectomy (HTA + ...)	119	34,9%	
QT alone or with CP	22	6,5%	
He did not undergo cancer treatment	20	5,9%	
Not informed	12	3,5%	
Other	4	1,2%	

Source: Data collected by the researcher. Santarém, 2025.

Figure 2 shows that the time until the start of treatment varied according to the type of uterine cancer. Patients diagnosed with endometrial cancer had the highest mean and median times to start therapy, in addition to greater data dispersion. In contrast, cervical cancer cases, which accounted for the majority of the sample, had a more concentrated distribution and shorter times between diagnosis and initiation of treatment. The few cases of uterine body cancer showed marked variability, albeit in small amounts. The median indicates 66 days between diagnosis and the start of treatment for the entire sample.

Figure 2

Boxplot showing the median time between diagnosis and initiation of treatment according to type of uterine cancer. Santarém – PA, 2012-2024
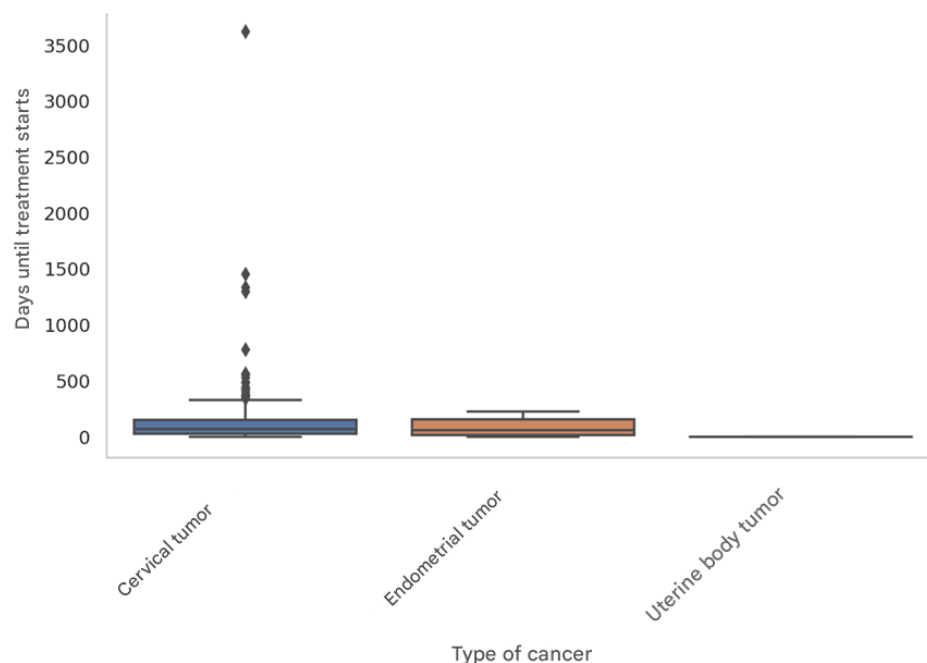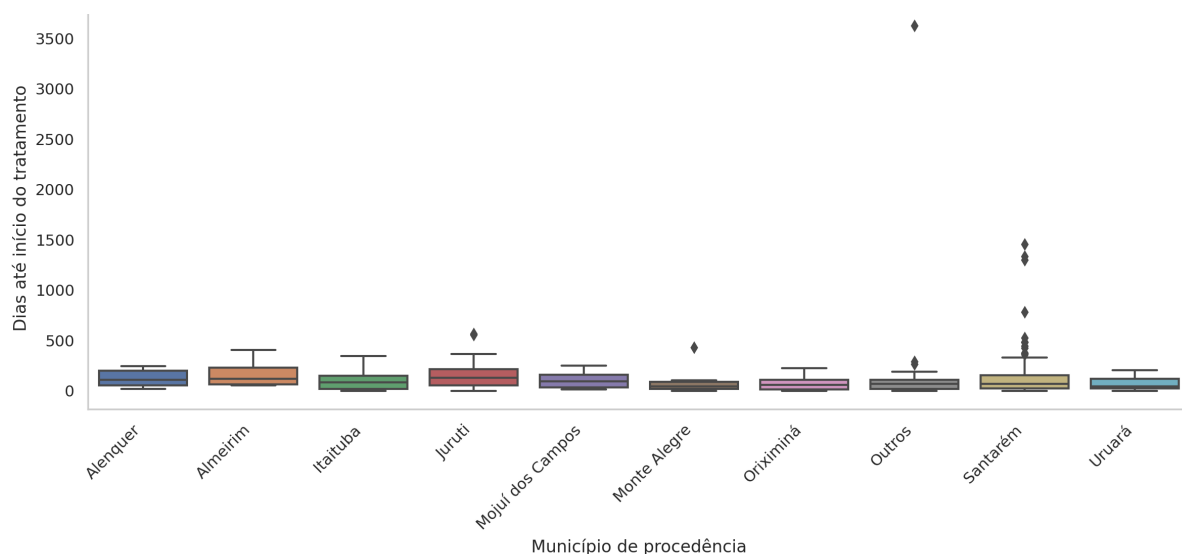

Source: Data collected by the researcher. Santarém, 2025.

The variation in the times between diagnosis and the start of treatment, according to the municipality of origin, indicates inequalities in access to oncology services in the region served by the public hospital analyzed. The data suggest that patients living in more distant municipalities or with less local health infrastructure, such as Juruti and Itaituba, take longer to start treatment, possibly due to logistical difficulties, late referrals, or lack of specialized services. Patients from closer municipalities or with better articulation with the reference hospital, such as Monte Alegre and Oriximiná, start treatment in a shorter time. Santarém, as the municipality where the hospital is located, has an intermediate time, which may reflect both greater ease of access and overload of the local network. The "Other" category shows high variability, suggesting that patients from less frequent locations may have very different trajectories, influenced by factors specific to their territories (Figure 3).

Figure 3

Boxplot showing the time between diagnosis and start of treatment according to municipality of origin. Santarém – PA, 2012-2024

Source: Data collected by the researcher. Santarém, 2025.

Table 3 shows that radiotherapy associated with other modalities was the most used treatment, with 67 cases in progress and 66 deaths. On the other hand, associated hysterectomy had a higher number of discharges due to cure (10) and a lower proportion of deaths (26), suggesting better results. Among the patients who did not undergo cancer treatment, most died (14 cases). Chemotherapy alone or with palliative care was also associated with a high number of deaths (19), with no cases of discharge due to cure recorded in this group.

Table 3

Distribution of outcomes according to treatment modality. Santarém – PA, 2012-2024

Type of treatment	Cure discharge	In progress	No outcome/abandonment	Transfer	Death
Associated hysterectomy	10	65	17	1	26
He did not undergo cancer treatment	0	2	4	0	14
Other	0	1	2	0	1
QT alone or with CP	0	0	3	0	19
Associated radiotherapy	7	67	24	0	66

Source: Data collected by the researcher. Santarém, 2025.

During the collection of the data presented, many gaps were unfortunately perceived. For example, the fact that a certain number of patients were admitted to the reference hospital, but with advanced disease, with *compromised Performance Status* , so it was not possible to perform oncological treatment or tumor staging, and the patient died in a short time. Other observations, in some medical evolutions, there was a change in the diagnosis, and it was not possible to determine whether due to typing error or due to a suspicion of the professional.

Regarding other data that should initially be collected, such as the gynecological and reproductive history of the patients, unfortunately, most of the medical records did not provide this information, which is pertinent in determining the oncological treatment of uterine cancer, for this reason, and this type of data was not presented in the present study.

4 DISCUSSION

It was observed that the majority of women with uterine cancer in the western region of Pará is made up of brown women. A study that points to social inequalities in relation to this type of diagnosis shows that black, brown, and indigenous women have a greater chance of advanced diagnosis compared to white women. Added to this is the variable of low education, since black, brown, and indigenous women tend to have a lower level of education compared to white women (Oliveira, et al, 2023, p. 8).

The research by Melo, et al (2025) on racial disparities and incidences of endometrial cancer in Brazil shows that in most cases, deaths due to endometrial cancer occur in white women, but the study also revealed that there was an increase in the number of cases among black women, in addition, black women were diagnosed at an earlier age compared to white women.

In the present study, it was determined that there is a great predominance of social vulnerability represented by schooling, as most women declared having only elementary education. This factor corroborates other studies on the sociodemographic data of women with uterine cancer, which suggests that these women tend not to have the necessary knowledge to seek screening or pertinent treatment regarding the prevention of uterine cancer. Another factor that corroborated the studies was marital status, in which most patients declared themselves married (Sardinha, et al, 2021, p.11).

Regarding tumor staging, a study on social inequalities in the diagnosis of cervical cancer in Brazil pointed out that there is a large percentage of women with stage III or IV at the time of diagnosis in all federative units of Brazil, corroborating the present study, which points to the highest proportion of cases with stage III or IV at the time of diagnosis in women with uterine cancer in the western region of Pará (Oliveira, et al, 2023, p. 8).

A study that evaluated the epidemiological profile of cervical cancer in Brazil showed that the most commonly performed therapeutic modality as an intervention was radiotherapy (38%), corroborating the present study. Another study on the treatment of uterine cancer in the SUS points out that the most performed treatments were conization, followed by hysterectomy with pelvic exantheration, aimed mainly at patients with stage I. However, most patients with stage IV underwent treatment with radiotherapy (Stela, Sereno, Ródio, 2024, p. 398; Campuzano, et al, 2024, p. 9).

Regarding the time to start treatment, one study pointed out that the interval between diagnosis and the start of treatment was on average up to 2 months, with some exceptions that waited for more than 2 months to start treatment. Another factor pointed out by the study is the distance from home to the health facility, while most patients had to travel about 50 km to make appointments. These data corroborate the present study, which points out that most women waited a median of 66 days to start treatment, and likewise, women who lived in municipalities further away from the city of Santarém took longer to start treatment (Campuzano, et al, 2024, p. 8).

The western region of the State of Pará has a territorial extension of approximately 505,446.49 km², covering 19 municipalities. The population of this region according to the 2010 Census is almost 889 thousand inhabitants. The reference municipality in health care is Santarém, which has a hospital capable of providing oncology care of the High Complexity Oncology Unit (UNACON) type, covering chemotherapy, radiotherapy, ICUs and oncology clinic treatments (Barros, 2023; Pará Agency, 2024).

The great distances in the geography of the State of Pará are represented by the hydrographic basin. The main way to travel between the cities is by boat, with the municipalities closest to Santarém, requiring around 12 hours of travel by river. In this way, riverside communities are also far from the health care center of Santarém, in addition, studies carried out in the Amazon region point out that in addition to the commuting time, other points such as the lack of attendance at health centers and collection of preventive exams, as well as the ignorance permeated by machismo of the partners and the shame presented by the woman are important factors that directly impact the effectiveness of cancer screening uterine in the Amazon region (Rodrigues, et al, 2018, p.7).

Regarding the outcome, a study carried out in the State of Mato Grosso sought to evaluate the length of hospitalization of women with uterine cancer until death, the results showed that the median time from hospitalization to death was 33 days. Younger patients, between 16 and 39 years of age, had higher chances of survival, however, older patients tended to have a decrease in the survival rate, especially patients over 60 years of age (Xavier, et al, 2024, p. 4).

In the present study, the outcome varied according to tumor staging. According to the advanced disease, the outcome was more unfavorable. It is important to emphasize that a significant number of women were unable to undergo cancer treatment due to advanced staging at the time of diagnosis, thus presenting Performance Status deficiency , which compromises the patient's resistance to respond well to chemotherapy and/or radiotherapy treatment. The outcome in these cases is death, the patient is hospitalized, but has no resistance to receive curative treatment and receives only clinical treatment – in other words, palliative.

5 CONCLUSION

The present study concludes that there is a longer delay in the start of oncological treatment of uterine cancer suffered by women who live far from the city of Santarém. In addition, most women are admitted to the health service with locally advanced disease, which can further delay this time interval until the start of treatment.

The numerous cases of uterine cancer in the Amazon region, headed by cases of cervical cancer, have been highlighted in several epidemiological studies in the literature over the last few years, that is, the scenario does not change despite the fact that the Unified Health System (SUS) provides not only the free screening protocol, health education, as well

as complete cancer treatment. In view of this fact, it is necessary to persist in continuing to carry out studies on the behavior of this neoplasm in the Amazonian female population, as well as to implement public health policies that seek to improve the inclusion of women who live in remote communities in the interior of the Amazon.

ACKNOWLEDGMENT

REFERENCES

Amaral, J. A. T., & et al. (2024). Rastreio do câncer de colo de útero: Perfil clínico-epidemiológico, Belém-PA, 2019-2022. Brazilian Journal of Health Review, 7(1), 6395–6411. https://doi.org/10.34119/bjhrv7n1-515

Barroncas, J. P. R., & et al. (2024). Epidemiologia do câncer de colo do útero no estado do Amazonas. Cuadernos De Educación Y Desarrollo, 16(2), 1–4. https://doi.org/10.55905/cuadv16n2-ed.esp.356

Barros, M. J. B. (2023). Oeste do Pará: Ocupação, território e município [E-book]. Santarém: UFOPA; Rio de Janeiro: MC&G Editorial.

Campuzano, T. M. F., & et al. (2024). Real world data on cervical cancer treatment patterns, healthcare access and resource utilization in the Brazilian public healthcare system. PLoS ONE, 19(10), 1–18. https://doi.org/10.1371/journal.pone.0312757

de Melo, A. C., & et al. (2025). Disparidades raciais na incidência e desfechos do câncer endometrial no Brasil: Insights de registros populacionais. JCO Global Oncology, 11, 1–12. https://doi.org/10.1200/GO-24-00604

FEBRASGO. (2017). Rastreio, diagnóstico e tratamento do câncer de colo de útero. São Paulo: Federação Brasileira das Associações de Ginecologia e Obstetrícia.

Instituto Nacional de Câncer. (2022). Estimativa 2023: Incidência de câncer no Brasil. Rio de Janeiro: INCA.

Ministério da Saúde. (2023). Prevenção ao câncer do colo do útero. Boletim Temático da Biblioteca do Ministério da Saúde, 3(1).

Moraes, J. M. D. S., & et al. (2023). Obesidade como fator de risco para o desenvolvimento de câncer do endométrio. Contribuciones a Las Ciencias Sociales, 16(8), 1076–1085. https://doi.org/10.55905/revconv.16n.8-117

Oliveira, N. P. D., & et al. (2024). Desigualdades sociais no diagnóstico do câncer do colo do útero no Brasil: Um estudo de base hospitalar. Ciência & Saúde Coletiva, 29(6), 1–12. https://doi.org/10.1590/1413-81232024296.03872023

Paulino, E., & de Melo, A. C. (2023). Clinical characteristics and outcomes of a high-grade endometrial cancer cohort treated at Instituto Nacional de Câncer, Brazil. Revista da Federação Brasileira das Sociedades de Ginecologia e Obstetrícia, 45(7), 401–408. https://doi.org/10.1055/s-0043-1772177

Rodrigues, L., & et al. (2018). Cervico-vaginal self-collection in HIV-infected and uninfected women from Tapajós region, Amazon, Brazil: High acceptability, hrHPV diversity and risk factors. Gynecologic Oncology, 151(1), 102–110. https://doi.org/10.1016/j.ygyno.2018.08.004

Sardinha, A. H. D. L., & et al. (2021). Association between demographic variables and cervical cancer staging in elderly women: A retrospective study. Online Brazilian Journal of Nursing, 20, 1–14. https://doi.org/10.17665/1676-4285.20216479

Stela, F. E. T., Sereno, A. P. P. G., & Ródio, G. R. (2024). Perfil epidemiológico do câncer de colo de útero no Brasil de 2013 a 2021. Arquivos de Ciências da Saúde da UNIPAR, 28(2), 393–416. https://doi.org/10.25110/arqsaude.v28i2.2024-10975

Tang, X., Li, N., & Hu, Y. (2023). Prognosis and adjuvant chemotherapy for patients with malignant peritoneal cytology in early-stage non-endometrioid endometrial cancer. European Journal of Surgical Oncology, 49(11), 1–9. https://doi.org/10.1016/j.ejso.2023.107071

Xavier, S. P., & et al. (2024). Time to death from cervical cancer and its predictors in hospitalized patients: A survival approach study in Mato Grosso, Brazil. World Journal of Surgical Oncology, 22(1), 1–10. https://doi.org/10.1186/s12957-024-03518-y