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Clinical-epidemiological profile of women with cervical cancer in the North of the State of Tocantins - 2000 to 2015 period

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ABSTRACT

Cervical cancer (CC) is a worldwide public health problem and stands out in the North of the State of Tocantins as the leading cause of the cancer death. It is the fourth most common type cancer in women, with an estimate of 570 thousand new cases and 311 thousand deaths from this disease worldwide in 2018. The lack of effective screening increases the incidence of late diagnosis weighing on the budgets of developing countries, which are the most affected. The objective of this work is to describe the epidemiological profile of the woman treated which a diagnosis of cervical cancer in Northern of Tocantins. Materials and methods: It is a descriptive, retrospective, quantitative-interpretive study with analysis of data collected from 2000 to 2015 by the Health Information System of the Hospital Cancer Registry (SIS-RHC) linked to the Regional Hospital of Araguaína (HRA). The data were tabulated in spreadsheets for analysis of the variables evaluated. Results: 2.664 women with cervical cancer treated at the HRA were analyzed during this period. Within the existing stages, the stages 0, I and II were considered "early staging", and stages III and IV were considered "late staging". Conclusions: The factors occupation, race, education and smoking were well defined in the incidence of this tumor, especially in the case of late staging. The challenges are many to obtain adequate medical assistance, mainly in the Northern Region of Tocantins and adjacent regions. The knowledge of the epidemiological profile of these women will be important for the development of new health prevention policies, improving the incidence and mortality from this tumor.

Keywords: Cervical cancer, Epidemiological profile, Stages.

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1. INTRODUCTION

Cervical Cancer (CC) is a worldwide public health problem and stands out in the North of the State of Tocantins as the leading cause of death in women from cancer [1]. It is the fourth most common type of cancer in women and in 2018 there was an estimated number of 570 thousand women who suffered from it and 311 thousand deaths from this disease worldwide [2]. More than 80% of cervical cancer cases in the world are found in developing countries. The lack of effective screening increases the incidence of late diagnosis, and it weighs more on the budgets of these countries [3].

Among all gynecological malignancies, approximately 85% of cervical cancer (CC) cases occur in less developed countries and annual mortality varies eighteen times between different regions of the world, with rates below 2 per 100.000 women in West Asia and 27.6 per 100.000 women in East Africa. It is a problem that must be addressed and widely discussed, the incidence of which clearly disproportionately affects women from lower social classes and economically less favored regions [4]. Mortality rates are three times higher in Latin America and the Caribbean than in the United States and Canada [5]. Proper screening can abolish CC as a public health problem in any population [6]. In countries where CC screening and prevention public health programs are effective there has been a reduction of up to 4% per year to a total of 70% in incidence rates over the decades [7].

In Brazil, apart from skin cancer in 2018, CC was the second most incident type in the female population. The Northern Region was the only one in which it ranked first [6]. Although this region is not the one with the lowest schooling rate in the country, it had the lowest income per capita in 2018 [8] and had the lowest share of the Brazilian GDP in the same year [9].

The main cause of cervical cancer is *human papillomavirus* (HPV). By infecting the host, the virus can reach the deepest cells of the cervical epithelium, release its' DNA, starting to multiply itself. Thereafter, the cells begin an accelerated process multiplication with varying degrees of atypia, which may or may not evolve into cancer depending on other factors [10].

For the development of the neoplasm in addition to the virus infection, there is also an association with the patient's immunological status, nutritional deficiency, smoking, number of sexual partners, use of oral hormonal contraceptives and high parity (four or more births). After viral infection, depending on the organism's response, atypical cells that give rise to invasive cancer can develop [11]. Invasive disease is divided into stages according to the level of involvement of neighboring tissues or other organs. In stage 0 the tumor is restricted to the organ

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lining epithelium. In stage I the tumor is restricted to the cervix. In stage II the tumor goes beyond the cervix, invading the vagina or the parametrium, but does not reach the lower third of the vagina or the bony pelvis. In stage, III the tumor is beyond the cervix, reaching the lower third of the vagina or the bony pelvis. In stage IV the tumor invades adjacent or distant organs. [12].

2. MATERIALS AND METHODS

The present research is a descriptive, retrospective, quantitative-interpretative study with analysis of secondary data from the Hospital Cancer Registry through the Health Information System (SIS-RHC) linked to the Regional Hospital of Araguaína (HRA).

The research data were collected in the database of the Hospital Registry of Cancer department of the Regional Hospital of Araguaína - TO. Considered a general reference hospital, HRA is an institution which provides care to the population with medium and high complexity pathologies and supports the importance of this research.

The study population consisted of 2.664 women with histopathological diagnosis of CC who were treated at the HRA and included in the SIS-RHC between the years 2000 and 2015, regardless of the main treatment (surgery or radiotherapy) was performed at this institution or not.

A descriptive analysis of the patients' characteristics was performed using absolute and relative frequencies for categorical variables. It was used a 5%-level of significance for all statistical tests and the statistical analyzes were performed using the statistical software SAS 9.31, R2 and SPSS 20.0.

The data were collected from the SIS-RHC at the Regional Hospital of Araguaína. This study obtained the approval of the Research Ethics Committee (CEP 2.377.483) and Certificate of Presentation for Ethical Consideration (CAAE 79353017.6.0000.0014).

The study analyzes the variables age, race, education level, marital status, smoking and clinical staging of the tumor. Then two groups were formed with the initial staging variable as a parameter. The stages 0, I and II were considered “early staging” and the stages III and IV were considered “late staging”.

3. RESULTS AND DISCUSSION

The registered average age of the women was 49 years old (standard deviation = 14.6 years old), with the youngest register being 16 years old and the oldest, 94 years old, with an average of 48 years old. A finding similar to the study by Thuler et al [13], which analyzed the profile of 77.317 cervical cancer patients in Brazil between 2000-2009, which had an average of 49.2 years of age.

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Favaro [14] found an average of 48 years when analyzing 906 women in a cancer center in Sao Paulo- SP between 2000 and 2013.

The CC screening program in Brazil focuses on women between the ages of 25 to 64 years. This study showed that 81% of the cases were present among women between the ages of 25 to 64 years and that 19%of the patients were outside this age group. This is a very high percentage suggesting that the age group of the screening should be reassessed.

Regarding the race/skin color identification data, brown/mixed patients prevailed in 82.2% of women and there was a total of 89.5% non-white patients (Table 1). This result is close to that of Ribeiro et al [15] who found a relative frequency of 82.1% of non-white patients. Thuler et al [13] found 65.6% non-white patients. It is worth remembering that the North region has the highest percentage of brown population in the country with a total of 67.2% of the region's population [16].

The analysis of schooling revealed that 53% of the cases reported incomplete elementary education and 26% of the cases had no education (Table 1). Mascarello et al [17] found an index of 70.9% of incomplete elementary education in Vitória-ES, contributing to the high number of late diagnoses and, consequently, to the large number of recurrences, metastases, and deaths.

Table 1: Distribution according to age group, race/skin color and educational level

	N	**%**
Age group (years)	2.664	100.0
<19	7	0.3
20-29	217	8.1
30-39	561	21.1
40-49	653	24.5
50-59	575	21.6
60-69	391	14.7
>70	260	9.8
Race / skin color	2.426	100.0
White	255	10.5
Black	162	6.7
Yellow	2	0.1
Brown Race	1.993	82.2
Indigenous	14	0.6
No information	238	
Education	1.973	100.0
None	520	26.4
Incomplete Elementary School	1.046	53.0
Complete Elementary School	193	9.8

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High school	163	8.3
Incomplete Undergraduation	13	0.7
Complete Undergraduation	38	1.9
No information	691	

Source: Elaborated by the authors based on SIS-RHC of Regional Hospital of Araguaína.

According to table 2, married women represented 51% of the sample, while single women represented only 30%. This finding coincides with the findings by Thuler et al [13] and Ribeiro et al [15] who found a higher percentage in married women.

Table 2: Distribution according to marital status and smoking history

	N	**%**
Marital status	2.604	100.0
Not married	794	30.5
Married	1.328	51.0
Widower	349	13.4
Divorced	98	3.8
Stable union	35	1.3
No information	60	
Smoking	1.828	100.0
Never	801	43.8
Ex-consumer	175	9.6
Active consumer	732	40.0
Not rated	120	6.6
No information	836	

Source: Elaborated by the authors based on SIS-RHC of Regional Hospital of Araguaína.

Women with a history of smoking accounted for 53.1% of the total (Table 2). This finding is compared to Batista et al [18] who found rates of up to 76.3% of women with a history of smoking. The habit of smoking is related to the development of CC, and this risk increases with the increasing cigarette consumption [19]. Nicotine was found in the cervical mucus of female smokers and it is believed to cause decreased cellular immunity, facilitating viral multiplication [20].

The analysis of clinical stage (Table 3) showed that the predominant stage was IIIB with 31.8%, followed by stage 0 with 31.7%. Considering that the disease in stage 0 is not invasive, there is then an absolute predominance of stage III in patients with invasive cancer.

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Table 3: Distribution according to stages

Stages	N	%
0	812	31.7
IA	68	2.7
IB	206	8.0
IIA	51	2.0
IIB	323	12.6
IIIA	58	2.3
IIIB	813	31.8
IVA	117	4.6
IVB	111	4.3
Total	2.559	100.0
No information	105	

Source: Elaborated by the authors based on SIS-RHC of Regional Hospital of Araguaína.

Early diagnosis predominated with 57.1% and late diagnosis 42.9% of the total (Table 4). Thuler et al [13] included 77.317 cases of cervical cancer in Brazil and found 66% on early stage and 34% on late stage. Favaro [14] found rates of 39.6% on stage 0 and 16% on stage III when analyzing 906 cases in the state of São Paulo. Compared to other studies, there is a greater number of women diagnosed at an advanced stage.

Table 4: Distribution according to the stages subdivision

Stages subdivisions	N	%
Precocious	1.460	57.1
Late / Advanced	1.099	42.9
Total	2.559	100.0
No information	105	

Source: Elaborated by the authors based on SIS-RHC of Regional Hospital of Araguaína.

It should be considered that a large part of the population of the North Region resides in the rural areas, and some important factors that influence the diagnosis of the disease at an advanced stage are the difficulty of accessing the health service, including distance and admission to this service, socioeconomic factors, race and cultural disparity [21]. This situation was also evident in Tocantins when the profile of women with breast cancer was analyzed [22].

According to Tables 5 and 6, similarities were found in all profile characteristics and stages.

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Regarding the age group, it was observed that there is an increased chance of late diagnosis as the age increases. In patients under 39 years of age there was a predominance of early staging. The highest rate of late stage was for patients between 30 and 39 years old, with 29% of the total. After 50 years of age, there was a predominance on the late stage, which reached 56.3% in patients of 70 years of age or older. As for race, it was found that black women had 66.2% of late staging, white women had 44.1%. It is also noted that women with no education had a higher percentage of late staging, 68.0% (Table 5). On the opposite direction, married women had a higher rate of early stages 61.3% compared to single women. In relation to smoking, its association with the late stages was evident, reaching 70.7% in those who declared themselves as ex-smokers. It is worth remembering that in this study there is no report of the time between diagnosis and smoking cessation. Meaning many of them may have stopped smoking when receiving the clinical diagnosis, before the histopathological exam, and in interview, declaring themselves as ex-smokers. (Table 6).

Table 5: Distribution of patients per stage, according to age range (years), race/skin color and educational level

	Stages				**Total**		**P**
	Early		**Late**				
	N	**%**	**N**	**%**	**N**	**%**	
Age range (years)	1.460	57.1	1.099	42.2	2.559	100.0	<0,001
<19	2	10	0	0%	1	100.0	
20-29	166	77.9	47	22.1	213	100.0	
30-39	387	71	158	29.0	545	100.0	
40-49	354	57.2	265	42.8	619	100.0	
50-59	274	49.4	281	50.6	555	100.0	
60-69	167	44.8	206	55.2	373	100.0	
70+	110	43.7	142	56.3	252	100.0	
Race / skin color	1.246	53.3	1.090	46.7	2.336	100.0	<0,001
White	137	55.9	108	44.1	245	100.0	
Black	52	33.8	102	66.2	154	100.0	
Yellow	2	100.0	0	0.0	2	100.0	
Brown Race	1.049	54.6	873	45.4	1.922	100.0	
Indigenous	6	46.2	7	53.8	13	100.0	
Education	926	47.6	1.021	52.4	1.947	100.0	<0,001
None	164	32.0	348	68.0	512	100.0	
Incomplete Elementary School	528	51.1	506	48.9	1.034	100.0	
Complete Elementary School	104	55.0	85	45.0	189	100.0	

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High School	98	60.9	63	39.1	161	100.0
Incomplete University Education	6	46.2	7	53.8	13	100.0
Complete University Education	26	68.4	12	31.6	38	100.0

Source: Elaborated by the authors based on SIS-RHC of Regional Hospital of Araguaína.

Table 6: Distribution of patients according to stage, marital status and smoking history

	Stage				**Total**		**P**
	Early		**Later**				
	N	**%**	**N**	**%**	**N**	**%**	
Marital status	1.426	56.9	1.078	43.1	2.504	100.0	<0,001
Not married	419	54.1	355	45.9	774	100.0	
Married	774	61.3	489	38.7	1.263	100.0	
Widow	162	48.4	173	51.6	335	100.0	
Divorced	55	56.7	42	43.3	97	100.0	
Stable union	16	45.7	19	54.3	35	100.0	
Smoking	781	43.3	1.021	56.7	1.802	100.0	<0,001
Never	348	44.1	441	55.9	789	100.0	
Ex-consumer	51	29.3	123	70.7	174	100.0	
Active consumer	280	38.9	440	61.1	720	100.0	
Not rated	102	85.7	17	14.3	119	100.0	

Source: Elaborated by the authors based on SIS-RHC of Regional Hospital of Araguaína.

Failure to seek assistance may be the main cause of the high incidence of advanced stages in the State of Tocantins. The high rates of no education and incomplete elementary education totaled 79.4% of the women analyzed and contributed with a higher percentage for late staging, probably due to the lack of understanding of the necessity of Pap smears. According to a 2012 study, the reasons for the failure to perform Pap smear cytology by women were the lack of information about being the target of campaigns against the disease, pain, fear, disability and denial of facing a cancer diagnosis, which points to the failure in educating the population during actions to promote women's health [23, 24].

4. CONCLUSIONS

There are many challenges to obtain adequate health care, especially in the Northern Region

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of Tocantins and underlying regions. It is difficult to face the problems due to low educational levels and the lack of resources in its great territorial extension, where only Araguaína and the capital, Palmas, concentrate almost all the health infrastructure and the attendance to patients with pre-neoplastic lesions and carcinoma of uterine lap.

Schooling and smoking factors are well defined in the incidence of this tumor in the Northern Region of Tocantins, in addition to affecting the chances of advanced staging. Only screening and early detection can improve this situation.

However, it is not enough to just offer the service. In order to improve the quality of health, it is necessary to improve the level of education of women, decentralize the places of treatment - also improving basic care - by implementing effective screening programs for early diagnosis and treatment of precursor injuries.

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