Sociodemographic and clinical profile of women from Rondônia, Western Amazon (Brazil), diagnosed with the main types of cancer

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Abstract— Objective: To analyze the sociodemographic and clinical profile of women from Rondônia, Western Amazonia (Brazil), diagnosed with the main types of cancer, over a period of 3 years. Materials and Methods: The methodological design followed the characteristics of a documentary, transversal and descriptive study, based on the raw data produced and sectorized, according to the methodological model recommended by Paraguassú-Chaves et al [4]. We used an instrument developed by Paraguassú-Chaves [5], semi-structured, divided into two blocks: (a) Block I - sociodemographic profile of women with cancer and (b) Block II - clinical profile of women with cancer. The research coordinator asked the Human Research Ethics Committee to waive the Free and Informed Consent Term. The research works with primary data from an official source of the public health service in Rondônia. Results: The age group from 40 to 59 years old prevailed, brown skin color, little education, married women, smokers and 89% referred by SUS. Breast, cervical and skin cancers were the most common. The oncology clinic was responsible for the entry of 89.6% of women with cancer. At the entrance to the oncology clinic women without treatment and advanced stages of the disease predominated, with a diagnosis confirmed by histological examination and with a single primary tumor. It prevailed "Other therapeutic procedures used. 23.8% of women with cancer have a family history of cancer. At the end of the 1st treatment, 71% of the patients have the disease in progress. 6.3% of women diagnosed with cancer died. Cancer of the stomach, liver, bronchi and lungs, breast and cervix caused deaths in women in Rondônia. Conclusions: The results presented are in accordance with the data of most studies carried out by Paraguassú-Chaves et al [3], [4], [6] and Paraguassú-Chaves [5] in Rondônia. In recent years, there has been an exponential growth of cancer in women in Rondônia. What is expected is that this research can serve as a basis for planning, executing and evaluating actions to promote, prevent, control and treat cancer in women in Rondônia.

Keywords— cancer in women. sociodemographic profile. clinical profile. Rondônia. Western Amazonia.

I. INTRODUCTION

According to the National Cancer Institute (INCA), cancer is the main public health problem in the world and is already among the four main causes of premature death (before the age of 70) in most countries. Cancer incidence and mortality are increasing worldwide, partly due to aging, population growth, as well as changes in the distribution and prevalence of cancer risk factors, specially those associated with socioeconomic development [1].

Currently, there is a transition of the main types of cancer observed in developing countries, with a decline in the types of cancer associated with infections and an increase in those associated with the improvement of socioeconomic conditions with the incorporation of habits and attitudes associated with urbanization (sedentary lifestyle, inadequate nutrition, among others) [2].

In the most recent world estimates, INCA [1], points out that in 2018, there were 18 million new cases of cancer in the world (17 million not counting cases of non-melanoma skin cancer) and 9.6 million deaths (9.5 million excluding non-melanoma skin cancers). And, according to Bray *et al* [2] in women, the highest incidences were breast cancer (24.2%), colon and rectum (9.5%), lung (8.4%) and cervix (6.6%).

The adjusted rate of cancer incidence in women, excluding non-melanoma skin cancer, was 175.6 per 100.000, varying between different regions of the world. In countries with the highest Human Development Index (HDI), incidence rates were two to three times higher than in countries with a medium or low HDI index. In women, breast cancer rates predominate regardless of the HDI. Colon and rectal cancer has the highest adjusted rates in countries with high HDI; while, in countries with low and medium HDI, the second most incident is cervical cancer [2].

In Brazil, an estimate for each year of the 2020-2022 triennium indicates that 625 thousand new cases of cancer will occur (450 thousand, excluding cases of non-melanoma skin cancer) [1]. The most common types of cancer in women, except for non-melanoma skin cancer, will be breast (29.7%), colon and rectum (9.2%), cervix (7.4%), lung (5.6%) and thyroid gland (5.4%). Non-melanoma skin cancer represents all cancer cases in 29.5% in women. Incidence rates adjusted for age, with the exception of non-melanoma skin cancer, in women (145.00 / 100 thousand) are considered intermediate and compatible with those presented for developing countries. Female breast cancer has one of the highest adjusted rates for all geographic regions of Brazil and its magnitude is about two to three times higher than the second most

frequent, except in the North Region where the adjusted rates for breast and cervix are very close [1].

The North Region (where the State of Rondônia is located) is the only Brazil where the rates of breast and cervical cancer are equivalent among women. For the State of Rondônia (North Region of Brazil, Western Amazonia), as shown for the year 2020 of the gross and adjusted rates for the incidence of 100 thousand inhabitants and number of new cases of cancer, according to sex and historical location, are: breast cancer with 220 new cases (crude rate 24.07 and adjusted rate 29.30), cervix with 130 new cases (crude rate 14.44 and adjusted rate 17.22), trachea, bronchi and lung with 70 new cases (gross rate 7.72 and adjusted rate 9.21), colon and rectum with 70 new cases (gross rate 8.11 and adjusted rate 10.40), stomach with 40 new cases (gross rate 4.57 and adjusted rate 5 , 98), ovarian cancer with 30 new cases (gross rate 3.14 and adjusted rate 3.72), thyroid gland with 30 new cases (gross rate of 3.22 and adjusted rate of 4.04) and skin cancer with melanoma with 20 new cases (gross rate of 1.88 and adjusted rate of 2.11) [1].

According to Paraguassú-Chaves *et al* [3], one explanation for the significant increase in the incidence of cancer lies in the greater exposure of cancer risk factors. The redefinition of living standards, based on the standardization of working conditions, nutrition and consumption triggered by the global industrialization process, has important repercussions on the epidemiological profile of populations. Demographic changes, with reduced mortality and birth rates, indicate a prolonged life expectancy and an aging population, leading to an increased incidence of chronic-degenerative diseases, mainly cardiovascular and cancer. Thus, cancer constitutes a public health problem for the developed world - and also for developing countries, in which the sum of new cases diagnosed each year reaches 50% of the total observed in the five continents, as already registered in 2002 by the Pan American Health Organization (PAHO).

In Brazil, the distribution of different types of cancer suggests an ongoing epidemiological transition. With the recent aging of the population, which projects the exponential growth of the elderly, it is possible to identify a significant increase in the prevalence of cancer. This situation requires the managers of the Unified Health System (SUS) to make an immense effort to offer adequate care to the population. This perspective makes clear the need for major investment in health promotion, in the quest to modify the patterns of exposure to risk factors for cancer. While there is a clear increase in the prevalence

of cancers associated with the best socioeconomic status - breast, prostate and colon and rectum -, simultaneously, we have high incidence rates of tumors generally associated with poverty - cervix, penis, stomach and oral cavity [3].

In this scenario, resources and efforts must be directed to guide cancer prevention and control strategies at all levels (health promotion, early detection, patient care, surveillance of cancer and its risk factors, training of human resources, communication and social mobilization, research and management of the Unified Health System (SUS).

In this context, the Hospital Cancer Registry (RHC) represents an extremely important tool for the knowledge and monitoring of cancer morbidity and mortality. The basic requirements of RHC are: (local) support to the manager, government, available resources, collaboration with the main data providers, used hardware and software equipment, customized installations, trained personnel, and cooperation with other public and international registries. Its use is to provide the clinical staff and the hospital administration with information on the frequency and possible trends of the most varied types of cancer diagnosed and / or treated in health units and estimates of patient survival.

To compose this picture, the state government of Rondônia implemented the High Complexity Assistance Unit - UNACON, in 2007, at the Hospital de Base Dr. Ary Pinheiro, in the city of Porto Velho, capital of the state of Rondônia. UNACON identifies and catalogs the data to support the Hospital Cancer Registry Information System - SISRHC / INCA, with systematic sources of information from the medical record regarding the registration and follow-up of admitted cases, assessing the extent, quality of survival and indirectly, the quality of the service provided at the institution. The information is a primary source for epidemiological research on determinants of cancer and also for planning prevention, diagnosis and treatment of the disease.

The greatest evidence of cancer as a public health problem in the state of Rondônia is the installation of the Barretos de Rondônia Hospital, the so-called Hospital do Amor Amazônia, the largest and most important health unit specialized in neoplasms in the Amazon. Reference hospital in oncology in the Brazilian Amazon, where medical assistance is free and linked to the Unified Health System (SUS).

In Rondônia, research, Epidemiological profile of cancer in Rondônia: Brazilian Amazon, by Paraguassú-Chaves *et al* [4] and Epidemiology of cancer in Rondônia,

by Paraguassu-Chaves *et al* [3] has highlighted key points for understanding cancer in Rondônia, such as the description of the distribution and magnitude of cancer in the population of Rondônia (who became ill, type of cancer, in what situation the disease occurred, etc) both at the municipal level and across the entire state of Rondônia; the systematization of essential data for the planning, execution and evaluation of cancer promotion, prevention, control and treatment actions in Rondônia, as wel as for the establishment of priorities; the approximation of the identification of the etiological factors in the genesis of cancers in Rondônia; the provision of an educational tool and product that can be used as instructional material for teaching purposes at the reach of all people regardless of the level of school or cultural education; the availability of data and information to support the development of studies and applied research on the production and distribution of cancers in Rondônia.

The objective of this study is to describe the sociodemographic and clinical profile of women from Rondônia, Western Amazon (Brazil), diagnosed with the main types of cancer, over a period of 3 years.

II.   MATERIALS AND METHODS

2.1 Study Type

The methodological design followed the characteristics of a documentary, transversal and descriptive study, based on the raw data produced and sectorized, according to the methodological model recommended by Paraguassú-Chaves *et al* [4]. The primary data were organized by the Hospital Nucleus of Epidemiology - NHE of the largest public referral hospital in the state of Rondônia, based on the diagnoses made at the Cancer Specialized Hospital, for a period of three years.

2.2 Model of Semi-structured Instrument Paraguassú-Chaves [5].

We used an instrument developed by Paraguassú-Chaves [5], semi-structured, was divided into two blocks: (a) Block I - Sociodemographic profile of women with cancer in Rondônia, with the following variations: age at diagnosis, race / color, education level / education, marital status, activity / occupation, origin of referral, smoking, alcoholism, origin, distribution of the 10 main neoplasms in women by race / color, distribution of the 10 main neoplasms by age group, distribution of the 10 main neoplasms by grade school distribution of the top 10 smoking neoplasms, distribution of the top 10 neoplasms due to alcoholism, distribution of the top 10 neoplasms by activity, distribution of the top 10 neoplasms by marital

status; (b) Block II - Clinical profile of women with cancer in Rondônia, with the following variations: proportional distribution of more frequent neoplasms in women - analytical and non-analytical cases; distribution of the top 10 neoplasms by entry clinic, distribution of the top 10 neoplasms by family history of cancer, distribution of the top 10 neoplasms by type of treatment, distribution of the top 10 neoplasms after initial treatment, distribution of the top 10 neoplasms by death / cancer.

These data were inserted in statistical platforms, reviewed, (re) classified, (re) interpreted, (re) analyzed and correlated according to the descriptive and analytical methods, using frequency distribution and proportional percentages in the statistical representations, according to instrument developed by Paraguassú-Chaves *et al* [6].

2.3 Sampling Number

The research was carried out with the database of 2.758 women diagnosed with cancer in Rondônia, corresponding to the period of 3 years.

2.4 Inclusion and exclusion criteria

Complete protocols with data or more than 80% of the variables were included. Cancers of the hematopoietic and rediculoendothelial system were excluded due to their extreme frequency in children and adolescents.

2.5 Ethical Aspects

The research coordinator asked the Human Research Ethics Committee to waive the Free and Informed Consent Term, because the study did not require patient intervention or collection of biological material and there was no possibility of constraints for the patient and his family. The research works with primary data from an official source of the public health service in Rondônia.

III. RESULTS

In 3 years of studies, 5.149 cases of cancer were diagnosed in the State of Rondônia. Of these, 2.758 (53.56%) were diagnosed in women.

3.1 BLOCK 1 - SOCIODEMOGRAPHIC PROFILE OF WOMEN WITH CANCER IN RONDÔNIA

3.1.1 Sociodemographic profile of all women with cancer in Rondônia.

Sociodemographic aspects and their indicators allow us to know the characteristics of a specific population and its evolution over time in the territory. In the health sector, this information supports the decision-making process,

since it helps in the knowledge about health conditions, mortality and morbidity, risk factors, population; gender ratio; demographic conditions, among others [7], [8].

The age at diagnosis was predominant in the 40 to 49 age group, with 21.1%, and in the 50 to 59 age group, with 24.9%. These two age groups account for 46% of all types of cancer in women in Rondônia. After this age, there was a decrease to 18.7% (between 60 and 69 years), 10.9% (between 70 to 79 years) and 3.7% (equal to or greater than 80 years). It became evident that the age group under 29 years old has a lower incidence of cancer in relation to the other age groups, with an accumulated frequency of 7.3%, according to [9]. In this age group, cancer must be studied separately, as it has different primary sites, histological origins and clinical behavior. (Table 1).

As can be seen in Table 1, which exposes the proportional distribution of cancer according to skin color, brown color is predominant in the State of Rondônia and the one with the highest incidence, making a total of 64.4% of all neoplasias.

The frequency of 43.3% of women who have not completed elementary school is statically very significant, followed by women with no educational instruction, with 19.7%. With complete elementary school there is 17.9%, complete high school, 13.4% and complete higher education, the lowest frequency of cancer, with 5.7%. In this study, the higher frequency of cancer in women with little education is evident.

Referring to the distribution of cancer patients according to marital status, married women predominated, with 72.9% of new cases. Then, single women with 16.2% of cases, followed by widows with 7.3% and legally separated / divorced and divorced with 3.6%.

To confirm the performance and importance of SUS, 99.2% of female patients admitted to referral hospitals specializing in cancer treatment were referred by the Unified Health System - SUS. Only 0.2% of all registered cancer cases did not originate from referral by SUS. 89% of women with cancer are smokers and 11% are ex-smokers. 81% of women diagnosed with cancer have never consumed alcoholic beverages and 11% are ex-consumers. 74% of women diagnosed with cancer were born in other states in Brazil and 21.5% are from the state of Rondônia. (Table 1).

Table 1. Summary of the relative frequency (%) of the sociodemographic variables of all women with cancer in Rondônia.

Sociodemographic variables	Fr %	Sociodemographic variables	Fr %
Age at diagnosis		**Race / Color**	
<29 years	7.3	White	19.5
30 to 39 years	13.4	Brown	64.4
40 to 49 years	21.1	Yellow	0.5
50 to 59 years	24.9	Black	3.0
60 to 69 years	18.7	Indigenous	0.6
70 to 79 years	10.9	No information	12
80 years or older	3.7		
Degree of Education		**Marital Status**	
Illiterate	19.7	Married	72.9
Incomplete elementary school	43.3	Single	16.2
Complete elementary school	17.9	Separated / divorced	3.6
Complete high school	13.4	Widow	7.3
Graduated	5.7		
Smoking		**Alcoholism**	
Yes	89	Yes	8
Never	0.0	Never	81
Ex-consumer	11	Ex-consumer	11
Forwarding source		**Source**	
SUS	99.2	Rondônia	21.5
Not SUS	0.2	Other states	74.4
Others	0.6	Foreign	0.8
		No information	3.3

Fr % Relative frequency.

3.1.2 Sociodemographic profile of women diagnosed with cancer among the 10 main neoplasms in women in Rondônia.

Age is still one of the most important risk factors for cancer in women. Incidence rates increased rapidly after the age of 40. In Rondônia, the age group of cancer in the 40 to 59 age group reaches 48.8% of the 10 main types of cancer in women.

Breast cancers and cervical cancer have the highest frequency in women aged between 30 and 59 years in the state of Rondônia. Breast cancer maintains a high frequency from the age group of 30 to 39 years (21.64%),

40 to 49 years (49.21%), 50 to 59 years (37.05%), 60 to 69 years (32.19%) and 70 to 79 years (21.05%). Cervical cancer has a higher age group in women under the age of 29 years (52.27%) and in the age group from 30 to 39 years (41.79%) different from the high frequencies frequent in women with breast cancer. Cervical cancer has a considerable increase in the age group from 70 to 79 years old (22.80%).

With the increase in this age group, it is possible to notice a decrease in cervical and breast cancer, and an increase in skin cancer in women aged 60 and 80, with emphasis on women aged 60 to 69 years (20.54%) and

older than 80 years with 47.82%. Stomach cancer has an increase in age from 70 to 79 years (17.54%) and liver cancer increases in the age group older than 80 years with

21.73%. Women in the age group under 29 and those over 80 are less frequent in diagnosing cancer. (Table 2).

Table 2: Distribution of the 10 main neoplasms of women in the State of Rondônia by age at diagnosis of cancer. Rondônia / Brazil.

Age Range Cancer Diagnosis	<29 years	30 – 39	40 – 49	50 - 59	60 – 69	70 – 79	> 80 years	Others
breast cancer	4.5	21.6	49.2	37.0	32.2	21.1	8.7	66.7
cervical cancer	52.3	41.8	19.9	15.7	15.1	22.8	8.7	0.0
skin cancer	15.9	8.2	7.9	14.2	20.5	14.0	47.8	0.0
thyroid gland	4.5	8.9	1.6	6.1	3.4	1.7	0.0	0.0
stomach cancer	4.5	4.5	4.7	3.0	8.2	17.5	4.3	33.3
colon cancer	0.0	4.5	4.7	5.6	4.8	5.3	4.3	0.0
ovarian cancer	2.3	6.7	6.3	4.1	1.4	5.3	4.3	0.0
bronchi and lungs	0.0	0.7	1.6	3.0	6.8	3.5	0.0	0.0
rectal cancer	2.3	2.2	3.7	4.6	5.5	7.0	0.0	0.0
liver cancer	4.5	0.7	0.5	6.6	2.1	1.7	21.7	0.0
Fr %	**5.5**	**16.9**	**24.0**	**24.8**	**18.3**	**7.2**	**2.9**	**0.4**

Fr % Relative frequency.

Table 3 shows the distribution of the 10 main neoplasms in women in the State of Rondônia by Race / Color. Neoplasms diagnosed in brown (64.2%) and white (30.9%) women are more frequent than in other ethnicities, such as: yellow, black and indigenous. In brown women, these diagnoses were the majority, as they present a large percentage of women with breast cancer (36.8%), cervix (20.1%) and skin (12.7%), while in white

women they are also breast cancer (39.4%), cervix (15.9%) and skin (16.5%). Black women were more frequent in breast (44.4%), cervix (27.8%) and colon (11.1%) cancers. Yellow women had the highest frequencies of breast cancer, thyroid gland cancer, stomach cancer, bronchi and lungs, while in indigenous women the highest frequencies were breast, stomach, rectum and liver cancer. (Table 3).

Table 3: Distribution of the 10 main neoplasms in women by Race / Color.

Ethnicity / Color	Brown	White	Black	Yellow	Indigenous
breast cancer	36.8	39.4	44.4	40.0	25.0
cervical cancer	20.1	15.9	27.8	0.0	0.0
skin cancer	12.7	16.5	0.0	0.0	0.0
thyroid gland	3.7	3.5	5.5	20.0	0.0
stomach cancer	5.4	4.7	5.5	20.0	25.0
colon cancer	4.8	4.1	11.1	0.0	0.0
ovarian cancer	5.7	5.3	0.0	0.0	0.0
bronchi and lungs	3.1	3.5	0.0	20.0	0.0
rectal cancer	3.9	3.5	5.5	0.0	25.0

liver cancer	3.7	3.5	0.0	0.0	25.0
Fr %	**64.2**	**30.9**	**3.3**	**0.9**	**0.7**

Fr % Relative frequency.

The educational level of women diagnosed with cancer is (38.3%) with incomplete elementary school, (23.0%) with complete elementary school and (19.5%) illiterate.

According to (Table 4), it is possible to identify which cancer rate in women with less education is much higher than the cases diagnosed in women with a higher level of education, in which to understand how information is also an effective way to prevent and treatment of the disease, however, breast cancer had an independent participation in the level of education, with 32.7% of illiterate women, 35.9% with incomplete elementary school, 38.5% with complete elementary school, 40% with high school and 57.1 % with higher education.

The high frequency of cervical cancer also does not depend on the level of education. Cervical cancer corresponds to 14.5% of illiterate women, 18.5% with incomplete primary education, 21.5% with complete primary education and 20% with complete secondary education. The highest frequencies of skin cancer were diagnosed in illiterate women (16.7%), complete elementary school (15.4%) and complete high school, with 20%. Colon cancer is more frequent in women with complete elementary school education (10.2%) and complete higher education (21.4%). (Table 4).

Table 4: Distribution of the 10 main neoplasms in women by level of education.

Degree of Education	Illiterate	Incomplete elementary school	Complete elementary school	Complete high school	Graduated
breast cancer	32.7	35.9	38.5	40.0	57.1
cervical cancer	14.5	18.5	21.5	20.0	7.14
skin cancer	16.7	7.40	15.4	20.0	0.0
thyroid gland	1.81	1.85	6.15	7.5	0.0
stomach cancer	10.90	4.62	4.61	2.5	0.0
colon cancer	0.0	10.2	1.53	5.0	21.4
ovarian cancer	5.45	8.33	3.07	2.5	7.14
bronchi and lungs	3.63	4.62	3.07	0.0	0.0
rectal cancer	9.09	4.62	3.07	2.5	0.0
liver cancer	5.45	4.62	3.07	0.0	7.14
Fr %	**19.5**	**38.3**	**23.0**	**14.2**	**5.0**

Fr % Relative frequency.

The distribution of the 10 main types of cancer in women shows that married women have the highest frequencies (73.6%), followed by single women with 16.3%. According to the marital status of each patient, it is possible to notice a big difference between the diagnoses of cancer in married women when compared to single women and other conjugated states. The highest

frequencies of breast cancer were 38.0% in married women and 22.7% in single women. In the case of cervical cancer, there is an inversion of values, 26.0% in married women and 38.2% in single women. In the case of separated / divorced women, both breast cancer with 53.8% and cervical cancer with 30.8% have a significant frequency. (Table 5).

Table 5: Distribution of the 10 main neoplasms in women by conjugal state.

Marital Status	Married	Single	Widow	Separated / Divorced
breast cancer	38.0	22.4	32.6	53.8
cervical cancer	26.0	38.2	5.9	30.8
skin cancer	9.6	13.2	17.6	0.0
thyroid gland	3.2	3.9	2.9	0.0
Stomach cancer	7.3	1.3	8.8	0.0
colon cancer	3.5	5.3	11.8	7.7
ovarian cancer	4.4	5.3	2.9	7.7
bronchi and lungs	2.0	1.3	2.9	0.0
rectal cancer	2.3	2.6	8.8	0.0
liver cancer	3.5	6.6	5.9	0.0
Fr %	**73.6**	**16.3**	**7.3**	**2.8**

Fr % Relative frequency.

The relative incidence of women who declared smokers was 89.3% and 10.7% ex-smokers. There were no records of women who had never smoked before. 38% of women smokers were diagnosed with breast cancer and 20% of smokers with cervical cancer. 34.4% of women diagnosed with breast cancer and 16.4% diagnosed with cervical cancer are ex-smokers. 34.9 of women diagnosed with colon cancer and 11.5% diagnosed with lung cancer are ex-smokers. (Table 6).

Table 6: Distribution of the 10 main neoplasms in women by smoking.

Smoking	Yes	Ex-consumer	Never
breast cancer	37.97	34.42	0.0
cervical cancer	20.15	16.39	0.0
skin cancer	12.13	6.55	0.0
thyroid gland	4.50	3.27	0.0
stomach cancer	6.84	3.27	0.0
colon cancer	4.89	34.91	0.0
ovarian cancer	5.08	0.0	0.0
bronchi and lungs	1.95	11.5	0.0
rectal cancer	3.71	9.83	0.0
liver cancer	2.73	9.83	0.0
Fr %	**89.3**	**10.7**	**0.0**

Fr % Relative frequency.

According to table 7, considering all types of cancer in women, alcoholism is not a determining factor for cancer in women in the state of Rondônia. Of the women diagnosed with cancer, 8.3% use alcoholic beverages. The frequency of women who have never consumed alcoholic beverages is 81.2% and 10.5% of ex-consumers. As a negative aspect, women who use alcoholic drinks stand out, with 36.2% diagnosed with cervical cancer, 25.5%

with breast cancer, 14.9% with ovarian cancer and 10.6% with stomach cancer. (Table 7).

Table 7: Distribution of the 10 main neoplasms in women due to alcoholism.

Alcoholism	Yes	Ex-Consumer	Never
breast cancer	25.5	30.0	39.7
cervical cancer	36.2	20.0	17.9
skin cancer	2.1	6.7	12.5
thyroid gland	2.1	1.7	5.2
stomach cancer	10.6	6.7	6.3
colon cancer	6.4	6.7	4.7
ovarian cancer	14.9	0.0	4.5
bronchi and lungs	0.0	6.7	2.4
rectal cancer	2.1	13.3	3.4
liver cancer	0.0	8.3	3.2
Fr %	**8.3**	**10.5**	**81.2**

Fr % Relative frequency.

Women who work in agriculture represent 43.4% of the cases diagnosed with cancer, followed by women who occupy in commerce, transport and other occupations with 21.7%, women at home (16.1%) and independent professionals (11.3%). In women by occupation in agriculture, rectal cancer with 28.3%, ovarian cancer with 19.6% and cervical cancer with 17.4% predominated. Women with a professional occupation in the industry and diagnosed with cancer were more frequent with 40% of cervical cancer, 40% of skin cancer and 20% of colon cancer.

In women working in commerce, transportation and other activities, they had cancer of the cervix (26.0%), ovary (30.4%) and cancer of the rectum (21.7%). There was a predominance of stomach cancer with a frequency of 33.3% and ovary cancer with 66.7% of women diagnosed with cancer and who work in the public service. Among liberal professionals, skin cancer (16.7%), thyroid gland (25%) and ovarian cancer (41.7%) predominated. In women who work at home, 35.3% of cervical cancer and 41.2% of ovarian cancer were diagnosed. (Table 8).

Table 8: Distribution of the 10 main neoplasms in women, by occupation.

Professional occupation	Agriculture	Industry	Commerce, Transport and Others	Public agent	Independent Professional	Works at Home
breast cancer	6.5	0.0	0.0	0.0	0.0	0.0
cervical cancer	17.4	40.0	26.0	0.0	8.3	35.3
skin cancer	4.3	40.0	4.3	0.0	16.7	5.9
thyroid gland	6.5	0.0	0.0	0.0	25.0	5.9
stomach cancer	0.0	0.0	0.0	33.3	0.0	5.9
colon cancer	2.2	20.0	0.0	0.0	0.0	5.9
ovarian cancer	19.6	0.0	30.4	66.7	41.7	41.2
bronchi and lungs	6.5	0.0	13.0	0.0	8.3	0.0
rectal cancer	28.3	0.0	21.7	0.0	0.0	0.0
liver cancer	8.7	0.0	4.3	0.0	0.0	0.0
Fr %	**43.4**	**4.7**	**21.7**	**2.8**	**11.3**	**16.1**

Fr % Relative frequency.

3.2 BLOCK 2 – CLINICAL PROFILE OF WOMEN WITH CANCER IN RONDÔNIA

In Rondônia, in the 3 years of studies, 2.758 new cases of cancer were diagnosed in women. Table 01 shows the distribution of neoplasms with the highest incidence in the state of Rondônia. Following the trend in Brazil, breast cancer is the one with the highest number of new cases registered in the State of Rondônia during the studied period. Breast cancer is more frequent with 35.5% of new cases, followed by cervical cancer with 22.6% of cases and skin cancer with 16.5% of cases. Cancer of the thyroid gland (6.7%), stomach (5.6%), colon (4.1%), ovary (3.8%), bronchi and lungs (3.3%), rectum (1, 4%) and liver (1.2%) make up the picture of the 10 most common neoplasms in women in Rondônia. (Table 9).

Table 9: Proportional distribution of the 10 most frequent neoplasms in women.

Primary Tumor Location	Fr %
breast cancer	33.5
cervical cancer	22.6
skin cancer	16.5
thyroid gland	6.7
stomach cancer	5.6
colon cancer	4.1
ovarian cancer	3.8
bronchi and lungs	3.3
rectal cancer	1.4
liver cancer	1.2

Fr % Relative frequency.

Cases of cancer of the hematopoietic system and reticuloendolthelial system (prevalence of cancer in children and adolescents aged 0 to 19 years) were excluded.

The oncology clinic was responsible for the entry of 89.6% of women with cancer in Rondônia. The other important entry clinics were gynecology and mastology. 35.4% of women with breast cancer, 25% of cervical cancer and 15.2% skin cancer were admitted to the oncology clinic, while 40.8% of women with breast cancer, 22.4% of the cervix and 13.2 of skin cancer were admitted by other clinics. Women with thyroid gland cancer and liver cancer were not admitted to any of these clinics. (Table 10).

Table 10: Distribution of the 10 main neoplasms in women by entry clinic.

Entrance Clinic	Oncology Clinic	Other Clinics
breast cancer	35.4	40.8
cervical cancer	25.6	22.4
skin cancer	15.2	13.2
thyroid gland	0.0	0.0
stomach cancer	6.4	6.6
colon cancer	4.7	6.6
ovarian cancer	4.7	5.3
bronchi and lungs	3.2	1.3
rectal cancer	4.4	3.9
liver cancer	0.0	0.0
Fr %	**89.6**	**10.4**

Fr % Frequencia relativa.

The oncology clinic registered 94.4% of women entering the 3 main entry clinics. Entry by the oncology clinic predominated, according to the diagnosis and previous treatment with the following situation in decreasing order: women with diagnosis and without treatment (62.9%), with diagnosis and with treatment (25.2%) and without diagnosis and without treatment (11.9%).

The entry of women through the gynecology / obstetrics and mastology clinics corresponds to 2.9% and 2.7% of the entry clinics, respectively. In the same way, the entry of women with diagnosis and without treatment prevailed, 62.1% in the gynecology / obstetrics clinic and 55.6% in the mastology clinic. (Table 11).

Table 11: Distribution of cancer by the three main entry clinics, according to previous diagnosis and treatment.

Entrance Clinic	With Diagnosis / With Treatment	With Diagnosis / Without Treatment	Without Diagnosis / Without Treatment	Fr %
Clinical Oncology	25.2	62.9	11.9	94.4
Gynecology / Obstetrics	15.9	62.1	22.0	2.9
Mastology	20.6	55.6	23.8	2.7
Fr %	**20.6**	**60.2**	**19.2**	**100.0**

Fr % Relative frequency.

The distribution of cancer by clinical stage, according to previous diagnosis and treatment, has a higher relative prevalence (41%) in the "no internship". Stages II with 17.5%, III with 16% and IV with 15% represent the frequencies affected by clinical staging. Stage I, with only 10.5%, represents the lowest relative prevalence. Women with diagnosis and without treatment with 44% at stage I, 46.1% at stage II, 46.6% at stage III, 49.1% at stage IV and 48.1% at stage, prevailed in all stages. (Table 12).

Table 12: Distribution of cancer by clinical stage, according to or previous diagnosis and treatment.

Internship	With Diagnosis / With Treatment	With Diagnosis / Without Treatment	Without Diagnosis / Without Treatment	Fr %
Stage I	48.3	44.0	7.7	10.5
Stage II	45.1	46.1	8.8	17.5
Stage III	46.6	46.6	6.8	16.0
Stage IV	37.6	49.1	13.3	15.0
No internship	22.4	48.1	29.5	41.0
Fr %	40.0	46.8	13.2	**100.0**

Fr % Relative frequency.

It was possible to analyze only 254 cases regarding the distribution of cancer by primary tumor location, according to the clinical stage of the disease. Due to a failure in the information system or changes in data filling, 1.986 protocols have "no information" about the location of the primary tumor and the stage of the disease.

The distribution of cancer by primary tumor and the stage of the disease is very delicate. There was a gradual growth from stage I (7.9%) to stage II (17.7%), from stage III (17.7%) to stage IV (20.5%) and non-stage (36.2%). Primary tumors are diagnosed in advanced stages of the disease. Breast cancer with stage II (34.2%), stage III (34.2%), stage IV (17.7%) and cervical cancer with stage II (44.8%) and stage III (34. 5%) and also bronchial and lung cancer with 90.9% in stage IV is very significant to demonstrate the stages of primary tumors in women in Rondônia. (Table 13).

Table 13: Proportional distribution of cancer by primary tumor location, according to clinical stage.

Internship / Primary Tumor	breast cancer	cervical cancer	skin cancer	thyroid gland	stomach cancer	colon cancer	bronchi and lungs	Others	Total
Stage I	13.9	17.2	28.6	16.7	0.0	0.0	0.0	1.0	7.9
Stage II	34.2	44.8	14.3	0.0	0.0	30.0	0.0	1.1	17.7
Stage III	34.2	34.5	14.3	16.7	28.6	10.0	9.1	1.1	17.7

Stage IV	17.7	3.5	0.0	16.6	57.1	60.0	90.9	6.4	20.5
No internship	0.0	0.0	42.8	50.0	14.3	0.0	0.0	90.4	36.2
Fr %	**31.1**	**11.4**	**2.75**	**2.4**	**2.75**	**3.9**	**8.7**	**37.0**	**100.0**

Fr % Relative frequency.

In the distribution of cancer in women, according to the number of diagnoses and primary tumors, 99.2% had their diagnosis confirmed by primary histological examination. 99.9% had a single primary tumor. The absolute majority of the diagnoses confirmed by the primary tumor histology exam and the one diagnosed as a single primary tumor are evidenced (Table 14).

Table 14: Proportional distribution of cancer, according to diagnosis and number of primary tumors.

Basis of Diagnosis	Fr %
Clinic	0.1
Clinical research	0.3
Examination by Image	**4.8**
Tumor Markers	**1.6**
Cytology	1.0
Primary Tumor Histology	**92.2**
Number of Primary Tumors	
Single Primary Tumor	**99.9**
Multiple Primary Tumor	0.1

Fr % Relative frequency.

Only 795 protocols were made available for access. Therefore, the analysis of the distribution of the 10 main neoplasms in women according to the type of treatment considered only the protocols correctly completed in all mandatory fields. Among the types of treatment and therapeutic procedures, "Other therapeutic procedures used" prevailed with an absolute prevalence of 337 cases (42.4%) of the 1st treatment received by the patient.

The second highest absolute frequency is surgery with 127 cases and the relative incidence of 16%, followed by chemotherapy with 68 cases (8.6%) of the first treatments received by women diagnosed with cancer. Due to inconsistency in filling out patient registration and follow-up forms, 241 (30.3%) of the procedures were discarded as ignored. (Table 15).

Table 15: Distribution of the 10 main neoplasms in women by type of treatment.

Treatment Type	Surgery	Surgery and Chemotherapy	Chemotherapy	Radiotherapy	Immunotherapy	Others	Ignored
breast cancer	20.5	33.3	44.1	8.3	0.0	39.8	28.6
cervical cancer	23.6	11.1	13.2	25.0	100.0	19.3	31.5
skin cancer	22.8	0.0	8.8	0.0	0.0	11.9	14.5
thyroid gland	2.4	11.1	0.0	8.3	0.0	5.0	5.8
stomach cancer	5.5	33.3	7.4	16.7	0.0	5.3	5.0
colon cancer	5.5	0.0	8.9	16.7	0.0	3.8	4.2
ovarian cancer	5.5	0.0	7.4	0.0	0.0	4.4	3.7
bronchi and lungs	4.7	11.1	2.9	8.3	0.0	3.0	0.8

rectal cancer	3.9	0.0	4.4	8.3	0.0	3.9	4.2
liver cancer	5.5	0.0	2.9	8.4	0.0	3.6	1.7
Fr %	**16.0**	**1.1**	**8.6**	**1.5**	**0.1**	**42.4**	**30.3**

Fr* % Frequencia relativa.

At the oncology clinic, the main entry clinic for diagnosis and treatment, the time in days, elapsed, second median, between a first consultation and the diagnosis was 15 days, a median between diagnosis and the start of treatment was 49.5 days and median between enrollment (1st consultation) and the start of treatment was 1 day. (Table 16).

Table 16: Time interval (in days) elapsed, according to the median, between: 1st consultation - 1st diagnosis; 1st diagnosis - start of treatment; 1st consultation and start of treatment, according to the clinic responsible for the care.

Description of the Entrance Clinic	Median Registration / Diagnosis	Median Diagnosis / Treatment	Median Registration / Start of Treatment
Clinical Oncology	15	49.5	1
Gynecology / Obstetrics	5.5	41	1
Mastology	19	36.5	12
Time (days)	**13.2**	**42.3**	**4.7**

Among the 10 main neoplasms in women with a family history of cancer, 23.8% of women with cancer have a family cancer history. 46.% do not link cancer with family history and 29.8% are not considered due to lack of information, thus being ignored. 37% of women with breast cancer have a family history of cancer. In the case of cervical cancer, this relative ratio is 18%. (Table 17).

Table 17: Distribution of the 10 main neoplasms in women by family cancer history.

Family Cancer History	Yes	Not	Ignored
breast cancer	37.0	40.7	18.98
cervical cancer	18.0	20.6	31.64
skin cancer	9.0	11.9	20.67
thyroid gland	6.9	3.5	4.21
stomach cancer	5.8	6.5	5.06
colon cancer	6.9	4.3	3.79
ovarian cancer	5.3	4.1	4.64
bronchi and lungs	3.0	1.9	3.79
rectal cancer	5.1	3.5	3.37
liver cancer	3.0	3.0	3.79
Fr %	**23.8**	**46.4**	**29.8**

Fr % Frequencia relativa.

For the analysis of the distribution of the 10 main neoplasms in women after the first treatment, the record with an absolute frequency of 776 women was used. Regarding the state of the disease at the end of the 1st (first) treatment, it can be seen that patients with progressing disease represent 71% (551 new cases),

followed by those with partial remission with 14.2% (110 cases) and stable disease with 12.9% (100 cases).

Only 1.9% (15 cases) had complete remission of the disease, that is, without evidence of disease. Breast cancer with 46.7% is the best representation of the total remission of the disease. (Table 18).

Table 18: Distribution of the 10 main neoplasms in women after the first treatment.

Cancer	Progression	Stable	Total Remission	Partial Remission
bronchi and lungs	5.6	11.0	0.0	0.9
cervical cancer	19.0	14.0	13.3	29.1
colon cancer	5.1	7.0	6.7	2.7
stomach cancer	5.6	14.0	0.0	5.5
liver cancer	3.3	10.0	0.0	0.9
thyroid gland	4.1	7.0	13.3	3.6
breast cancer	33.7	12.0	46.7	36.4
ovarian cancer	5.8	6.0	13.3	6.4
skin cancer	14.0	13.0	6.7	11.8
liver cancer	3.8	6.0	0.0	2.7
Fr %	**71.0**	**12.9**	**1.9**	**14.2**

Fr % Frequencia relativa. *Deaths were excluded.

It was possible to analyze 796 cancer cases among the 10 types of cancer in women. The difficulties are in the failure to complete the protocols. Of this sample, 50 women, that is, 6.3% of women diagnosed with cancer in Rondônia, died from the disease. The main victims of deaths were women with cancer of the stomach, liver, bronchi and lungs, breast and cervix. (Table 19).

Table 19: Distribution of the 10 main neoplasms in women by death / cancer.

Death / Cancer	Yes	Not
breast cancer	16.0	34.22
cervical cancer	12.0	24.02
skin cancer	4.0	14.49
thyroid gland	2.0	4.83
stomach cancer	20.0	4.96
colon cancer	6.0	4.56
ovarian cancer	4.0	4.56
bronchi and lungs	16.0	1.87
rectal cancer	0.0	4.29
liver cancer	20.0	2.14
Fr* %	**6.3%**	**93.7%**

Fr % Frequencia relativa.

IV. DISCUSSION

The present study allowed to know the sociodemographic and clinical profile of women diagnosed with the main types of cancer in the State of Rondônia, Western Amazon (Brazil). In the 3-year period, a total of 5.149 new cases of cancer were diagnosed in both sexes, an annual average of 1.716 new cases. Considering that the State of Rondônia has an estimated population of 1.800 inhabitants, the annual frequency of new cases of cancer represents approximately 1% of the total population of Rondônia. The research was carried out with the database of 2.758 women diagnosed with cancer in Rondônia. Therefore, cancers in women represent 53.56% of all cancers diagnosed in Rondônia. This frequency is very close to that found by Paraguassu-

Chaves *et al* [5] and Paraguassu-Chaves [6], also in the State of Rondônia.

Breast cancer has the highest number of new cases, followed by cancer of the cervix, skin cancer, cancer of the thyroid gland, stomach, colon, ovary, bronchi and lungs, rectum and liver. According to INCA [1], an estimate for the year 2020 of new cancer cases in women in Rondônia follows in decreasing order: breast cancer (220 new cases), cervical cancer (130 new cases), bronchi and lungs (70 new cases), colon and rectal cancer (70 new cases), stomach cancer (40 new cases), ovary (30 new cases) and thyroid gland (30 new cases) and melanoma skin cancer (20 cases new).

According to the study by Paraguassú-Chaves *et al* [3], the proportional distribution of more frequent neoplasms in women in the years 2014 and 2015 reported in the base hospitals Dr. Ary Pinheiro and Barretos / RO, had breast cancer as the highest incidence in the State of Rondônia, with 466 new cases. The ten most common neoplasms in women were in decreasing order: breast cancer (466), cervix (311), skin cancer (251), thyroid gland (111), stomach (77), colon cancer (53), bronchi and lungs (50), ovary (48), uterine body (28) and cancer of the hematopoietic and reticuloendothelial system with 27 cases.

There was a predominance of age at diagnosis in the age group of 40 to 59 years (45%), brown skin (64.4%), married women (72.9%), women with low schooling (43.3% with incomplete elementary school) and 99.2% referred by the Unified Health System. Soares *et al* [10] found that 68.1% of the population of women with cancer are from the Public Health System and Mascarello *et al* [11] found that 84.2% of cancer patients are referred by the Unified Health System (SUS).

Eighty-nine percent of women are smokers, 81% have never consumed alcoholic beverages and 74.4% are from other states in Brazil. These findings corroborate the results found by Paraguassu-Chaves [5] in the Diagnosis of Cancer in Women in Rondônia: Study of Medical Geography, by Paraguassú-Chaves *et al* [6] in the Epidemiological Profile of Rondônia, Paraguassú-Chaves *et al* [4] in the Epidemiological profile of cancer in Rondônia: Brazilian Amazon, Paraguassú-Chaves *et al* [3] in Epidemiology of cancer in Rondônia.

This study identified that breast cancer is the most frequent in 35.5% of new cases, followed by cervical cancer with 22.6% of cases and skin cancer with 16.5% of cases. Thus, the analysis with the adopted variables will focus on the 3 main types of cancer and the description will focus on the 10 most common neoplasms in women

from Rondônia. At this stage, the 10 most common types of cancer diagnosed in women in the state of Rondônia (Brazil) will be described.

According to Bray *et al* [2] in "Global Cancer Statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 types of cancer in 185 countries" and Ferlay *et al* [12] in "Estimating incidence and mortality global cancer in 2018: GLOBOCAN sources and methods ", in the world, breast cancer is the most incident among women. In 2018, there were 2.1 million new cases, equivalent to 11.6% of all estimated cancers. This value corresponds to an estimated risk of 55.2 / 100 thousand. For these same authors, the incidence of breast cancer is configured among the first positions of female malignancies, regardless of the country's socioeconomic condition.

According to the INCA [1], there has been a decline in the incidence rate in some countries, part of which is attributed to hormone replacement treatment in women after menopause. Also according to INCA [1], the most common histological type for female breast cancer is cell epithelial carcinoma, divided into in situ and invasive lesions. According to American Cancer Society [13], Bray *et al* [2], Ferlay *et al* [12] and Stewarte, Wild [14] the most frequent carcinomas are ductal or lobular.

According to INCA (15) in Brazil, 16.724 deaths from female breast cancer occurred in 2017, or the equivalent of a risk of 16.16 per 100 thousand. There is not only one risk factor for breast cancer, however, age over 50 is considered the most important [1]. According to Bray *et al* [2], Ferlay *et al* [12], other factors that contribute to the increased risk of developing a disease are genetic factors (mutations of the BRCA1 and BRC2 genes) and hereditary factors (ovarian cancer in the family)), in addition to late menopause (hormonal and reproductive factors), obesity, physical inactivity and frequent exposures to ionizing radiation (environmental and behavioral factors).

Cervical cancer is one of the most frequent tumors in the female population and is caused by persistent infection with some types of human papillomavirus (HPV) [1]. Genital infection with this virus is very common and does not cause disease most of the time. However, in some cases, cellular changes that can progress to cancer. These changes are easily discovered in the preventive exam (also known as the Pap smear) and are curable in almost all cases [1].

For Bray *et al* [2] and Ferlay *et al* [12], a worldwide estimate points out that cervical cancer was the fourth most frequent worldwide, with an estimate of 570 thousand new cases, representing 3.2% of all cancers. This

value corresponds to an estimated risk of 15.1 / 100 thousand women. According to INCA [15] in Brazil, in 2017, there were 6.385 deaths and the crude mortality rate due to cervical cancer was 6.17 / 100 thousand. Still according to INCA [1], other factors that increase the risk of developing this type of cancer are: early onset of sexual activity and sexual partners; smoking (disease directly related to the amount of cigarettes smoked); and prolonged use of birth control pills.

According to Bray *et al* [2] and Ferlay *et al* [12] of all diagnosed malignancies worldwide, non-melanoma skin cancer is the most common type in both sexes. They are more common in people with fair skin over 40, with the exception of those already with skin diseases. INCA [1] points out that this age profile has been changing with a constant exposure of young people to sunlight. According to the American Cancer Society (13), the main types of non-melanoma skin cancer are: squamous cell carcinoma; basal cell carcinoma - which is the majority of cases -; and melanoma skin cancer (which forms in melanocytes), which grows and spreads more quickly, although it is less common.

In Brazil, in 2017, 949 deaths occurred in women at risk of 0.92 / 100 thousand [1], and for melanoma skin cancer, there were 804 deaths in women, with a risk of 0.78 / 100 thousand [15]. The main risk factors for skin cancer are prolonged exposure to the sun (ultraviolet rays - UV), especially in childhood and adolescence, exposure to tanning beds and family history of skin cancer [1], [13].

In 2018, there were 567 million new cases of thyroid cancer, or the equivalent of 3% of all estimated cancers that occupy a position in the world. Predominantly, the cases are female with 436 thousand new cases (11.5 per 100 thousand) and in countries with high HDI [2], [12].

In Brazil, in 2017, there were 526 deaths from breast cancer in women, this value corresponds to the risk of 0.51 / 100 thousand [15]. History of neck irradiation, low-dose radiation therapy (mainly in childhood), family history of thyroid cancer and low iodine diet are the main risk factors for the development of the disease [1, 13, 14]. Other risk factors for developing diseases are: obesity, smoking, hormonal exposures and environmental pollution [16].

The most frequent stomach cancer is the type of adenocarcinoma, responsible for 95% of cases. Other types of tumors, such as lymphomas and sarcomas, can also occur in the stomach [1]. Worldwide, 350 thousand new cases in women were estimated, with an estimated risk of 9.3 / 100 thousand [1].

In Brazil, in 2017, there were 5.107 deaths in women, values corresponding to a risk of 4.93 / 100 thousand [15].

Helicobacter Pylori infection is the main risk factor for stomach cancer [1].

However, other risk factors that are related to the development of stomach cancer are: overweight and obesity; consumption of preserved foods without salt; food with low intake of fruits, vegetables and whole fiber, excessive consumption of alcohol and tobacco, some occupational exposures, such as, for example, an exposure of agricultural and pesticide farmers; and an exhibition for rubber production [1]. In addition to the hereditary factors that contribute to the development of this cancer, such as: diffuse hereditary gastric cancer, gastric adenocarcinoma and a proximal polyposis of the stomach [1].

Colon and rectal cancer includes tumors that start in the part of the large intestine (called the colon) and in the rectum (end of the intestine, just before the anus) and anus. According to INCA [1] colorectal cancer is amenable to treatment and, in most cases, it is curable, when detected early and has not yet reached other organs. The most recent worldwide estimate points out that, in women, 800 thousand new cases of colorectal cancer occur, being the second most incident tumor among all cancers with an incidence rate of 21.8 / 100 thousand [1].

In Brazil, in 2017, 9.660 (9.33 / 100 thousand) women died of colorectal cancer [15]. The main factors related to a higher risk of colorectal cancer are: age 50 years or older, obesity, physical inactivity, prolonged smoking, high consumption of red or processed meat, low calcium consumption, excessive alcohol consumption and poor diet in fruits and fibers. There are factors of hereditary origin that increase the risk, including family history of colorectal cancer and / or adenomatous polyps, some genetic conditions such as familial adenomatous polyposis and hereditary colorectal cancer without polyposis, history of chronic inflammatory bowel disease (colitis ulcerative or Crohn's disease) and type 2 diabetes, in addition to factors such as occupational exposure to ionizing pollution [1, 13].

Most new cases of ovarian cancer are formed by epithelial cells, or the remainder by germ cells and stromal cells [1]. Ovarian cancer is the eighth most common cancer among women in the world. In Brazil, in 2017, 3.879 deaths from ovarian cancer occurred, a risk equivalent to 3.75 / 100 thousand women [15].

According to the [1, 13], the main risk factors associated with ovarian cancer are: age (epithelial carcinoma) and family history of ovarian and breast cancer (mutations of the BRCA1 or BRCA2 genes). Other risk factors that are also important are: reproductive and hormonal, early menarche, late menopause, obesity and

smoking. Historically, the most common histological types are non-small cell, large cell, squamous cell, adenocarcinoma and oat cell carcinomas [14].

In the world, lung cancer is among the main ones in incidence, occupying third position among women [1]. The estimated total of new cases of this disease, in 2018, worldwide, represents 725 thousand new cases in women, corresponding to an estimated risk of 19.2 / 100 thousand.

In Brazil, in 2017, there were 11.792 deaths from lung cancer in women, values that represent an estimated risk of 11.39 / 100 thousand women [15]. Smoking and passive tobacco exposure are the main risk factors for the development of lung cancer. Eighty-five percent of diagnosed cases are associated with tobacco consumption [1]. Other risk factors are occupational exposure to chemical or physical agents (asbestos, silica, uranium, chromium and radon) and high doses of beta-carotene supplements in smokers and ex-smokers [1,13].

The incidence of liver cancer has more than tripled since 1980 [13]. Liver cancer mortality rates have increased by almost 3% a year since 2000. In Brazil, the National Cancer Institute (INCA) does not provide estimates for liver cancer.

Among the 10 main neoplasms of women by age in Rondônia, breast cancer has the highest frequencies between 30 and 79 years, distributed in the relative frequencies of 21.6% (30-39 years), 49.2% (40-49 years), 37 % (50-59 years), 32.2% (60-69 years) and 21.1% (70-79 years). Cervical cancer has a high frequency in women under 29 years old (52.3%), aged between 30 and 39 years (41.8%) and aged between 70 and 79 years old (22.8%). Skin cancer increases the frequency in women aged 60 to 69 years (20.5%) and over 80 years (47.8%), while stomach cancer has an increase in the age of 70 to 79 (17.5 %) and liver cancer increases in the age group above 80 years (21.7%).

In a research on cancer in the State of Rondônia, Paraguassú-Chaves *et al* [3] found in women with cancer, the relative frequency in the age group of 45 to 59 years (35.7%) in the first phase of the research and 45.8% in the age range 45 to 64 years old in the second phase (second year).

For Mascarello *et al* [11] the cases of cancer in women predominant in the age group from 40 to 59 years old (49.3%). In the research by Ribeiro *et al* [17] in a city in the Northeast of Brazil, the highest incidences were found in women aged 40 to 49 years (20.6%) and 50 to 59 years old (21.5%). Segundo According to INCA (18), the incidence of diseases is evident in the age group between 20 and 29 years old and whose risk increases until

reaching its peak, in the general age group between 45 and 50 years old. Approximately 80% of new cases occur in developing countries where, in some regions, it is the most common cancer in women.

Another variable considered in the research was the distribution of the 10 main neoplasms in women by race / color. Neoplasms diagnosed in brown (64.2%) and white (30.9%) women are more frequent. In brown women, breast cancer (36.8%), cervix (20.1%) and skin (12.7%) predominate, and white women, breast cancer (39.4%), cervix (15.9%) and skin (16.5%). Black women were more frequent in breast (44.4%), cervical (27.8%) and colon (11.1%) cancers. In indigenous women the highest frequencies were breast, stomach, rectum and liver cancer. The studies by Beleza *et al* [19] corroborates these findings. In the study by Mascarello *et al* [11], non-white color predominated (76.8%).

Paraguassú-Chaves *et al* [4] when studying the distribution of cancer on skin function, at Base Pinheiro hospitals Dr. Ary Pinheiro and Barretos de Rondônia, found the brown color with the highest relative frequency (46.9%) of the total universe studied, followed by the color white (21.6%), black (3.3%), yellow (0.6%) and indigenous (0.5%).

In the research by Paraguassú-Chaves *et al* [3] brown color predominated (68.5%) and white (21.4%) in the first year of study. In the second year of study, brown (46.9%) and white (21.6%) predominated, noting that in this last year, 27% did not report skin color. The predominance of brown color is justified by the greater concentration of people with brown color in Rondônia and in the Northern region of Brazil.

Araújo *et al* [20] recommend the race / color variable to be used as a demographic marker of health inequalities as exposed social groups. It is, therefore, a variable that should be used as a social marker more related to the factors to which this woman is exposed. than to genetic factors.

Another important variable considered in the research was the distribution of neoplasms by educational level. The educational level of women diagnosed with cancer is low, which represents people with a low level of education. However, breast cancer had an independent participation in the level of education, as well as the high frequency of cervical cancer also does not depend on the level of education. The highest frequencies of skin cancer were diagnosed in women with low education, while colon cancer is more frequent in women with complete elementary education and complete higher education. In the study by Mascarello *et al* [11] there was a

predominance of cancer in women with incomplete primary education (70.9%).

The studies by Paraguassú-Chaves *et al* [3] patients with complete and / or incomplete primary education represent 54.2% of the cases of notified cancer, complete and / or incomplete higher education 6.6%, medium level 10.6%, those who did not register an information added to the one without any information total 28.5%.

According to Leite *et al* [21] and Ramos *et al* [22], women with low education have a higher risk of developing cervical cancer and, according to Peres, Santos [23], the lower the education level, the greater the diagnostic risk advanced stage of these tumors. For Souza *et al* (24), the educational level of the patients was satisfactory. There was a prevalence of secondary education (68%), followed by complete higher education (13%) and incomplete higher education (8%). Amorim *et al* (25), demonstrate that the low level of education makes it difficult to capture information about the prevention and early detection of diseases, in addition to making access to health services more difficult.

According to Schneider, d'Orsi (26) in a historical cohort study carried out in Santa Catarina, women with incomplete elementary education were 3.76 times more likely to die than those with higher education, while illiterates were at risk 7, 40 times bigger. Dugno *et al* (27) argue that the low school level affects the patient's level of knowledge and increases as the school level increases.

The highest frequencies of breast cancer were 38.0% in married women. While cervical cancer, it prevails with 38.2% in single women. Separated / divorced women, both breast and cervical cancer have a significant frequency. In the research by Soares *et al* [10] there was a predominance of breast cancer in married patients (59%). In the survey by Mascarello *et al* [11] with patients with cervical cancer, they predominated as married patients (48.3%). Leite *et al* (21) in Diagnosis of breast cancer: socioeconomic, clinical, reproductive and behavioral profile of women, observed that the marital status of women was 43.4% married or living mariatally.

According to Soares *et al* [10], when studying the characteristics of women with cancer treated at referral services, they observed a predominance of married women (58.6%). Palmer, Lythgoe, Smith (28) and Lannin *et al* [29], do not consider marital status as an important factor, although the authors consider these studies necessary for a complete assessment of the patient's profile. Lannin *et al* [29] in a controversial study with American patients show that the risk of developing breast cancer at an advanced stage increased almost three times in women who were

never married, however, Croft, Sorkin, Gallicchio [30] argue that the marital factor is not considered a risk factor for the development of the disease, but the fact of having a partner is associated with better social support, optimization and quality of life among surviving women.

In this study, the distribution variable of the 10 main neoplasms in women and their relationship with smoking was also considered. Thirty-eight percent of women smokers were diagnosed with breast cancer and 20% of smokers with cervical cancer. Thirty-four percent of women with breast cancer and 16.4% with cervical cancer are ex-smokers. Approximately thirty-five percent of women with colon cancer and 11.5% with lung cancer are ex-smokers. In a study by Haddad, Carvalho, Novaes [31] active smoking (current or previous) was present in 40.7% of participants (vs. 59.3% non-smokers). In the research by Dugno *et al* [27], non-smoking and non-alcoholic individuals also prevailed (78% and 96.7%). Seventy-eight percent of the patients in this study claim never to smoke and no relationship was found between tobacco and disease staging [27].

In the study by Souza *et al* [24] 29% of women with cancer were smokers - a factor studied over time with contradictory results, but currently recognized by the International Cancer Research Agency (IARC), a carcinogen with a limited incidence of increased risk of breast cancer in humans. Luo *et al* [32] claim that most researchers agree that there is no consistent evidence to determine the influence of smoking on the development of breast cancer. Cancer in women is often confused by the effect of tobacco consumption associated with alcohol consumption, according to the Collaborative Group on Hormonal Factors in Breast Cancer [33]. Dossus *et al* [34], in a recent multicenter cohort study carried out in European countries (EPIC Study), shows that smoking (active or passive) increases the risk of developing a disease, being harmful between menarche and the first pregnancy.

This research considered the Distribution of the 10 main neoplasms in women due to alcoholism. The frequency of women who have never consumed alcoholic beverages is 81.2% and 10.5% of ex-consumers. There was alcohol consumption, with 36.2% in women with cervical cancer, 25.5% breast cancer, 14.9% ovary cancer and 10.6% stomach cancer. Souza *et al* [24] in a study on breast cancer in young women in northeastern Brazil, 57% of women with cancer consume alcohol. According to Nirmala *et al* [35], international studies show that this represents a relevant risk factor for breast cancer in both pre-menopausal and post-menopausal women. In the study

by Haddad, Carvalho, Novaes [31] alcohol consumption (current or previous), was declared by 37.3% of women against 62.7% who did not use alcohol. In contrast, Iwasaki, Tsugane [36] point to a prospective population-based study in Japan, showing how people who consume alcoholic beverages are at a greater risk of developing breast cancer. For Pirhardt, Mêrces [37], the use of alcohol is associated with a proportional increase in the development of cancer in women, that is, the more it is consumed, the greater the chances of its appearance.

One of the research questions was to know the occupational activities of women diagnosed with cancer. Women who work in agriculture represent 43.4% of the cases diagnosed with cancer, followed by women who occupy in commerce, transport and other occupations with 21.7%, women at home (16.1%) and independent professionals (11.3%). In women by occupation in agriculture, rectal cancer with 28.3%, ovarian cancer with 19.6% and cervical cancer with 17.4% predominated. Women with a professional occupation in the industry and diagnosed with cancer were more frequent with 40% of cervical cancer, 40% of skin cancer and 20% of colon cancer. In women working in commerce, transportation and other activities, they had cancer of the cervix (26.0%), ovary (30.4%) and cancer of the rectum (21.7%). There was a predominance of stomach cancer with a frequency of 33.3% and ovary cancer with 66.7% of women diagnosed with cancer and who work in the public service. Among liberal professionals, skin cancer (16.7%), thyroid gland (25%) and ovary (41.7%) predominated. In women who work at home, 35.3% of cervical cancer and 41.2% of ovarian cancer were diagnosed.

In the research by Paraguassú-Chaves *et al* [3], the proportional distribution of cancer in Rondônia, according to occupation or professional activity, patient profile based on professional occupation, the highest frequency was among multipurpose agricultural workers and similar workers (farm worker), followed by working women traders (wholesale and retail trade). In another study by Paraguassú-Chaves *et al* [4], the most frequent patients were agricultural workers and similar workers (farmer), agricultural workers not classified in other categories (farmer), health workers and similar professionals, industry professionals, teachers and civil servants. The incidence of cancer in women who work in their own homes is very significant and representative in this Amazonian context. According to Paraguassú-Chaves *et al* [5], the female sex with a high incidence of cancer is represented by the class of workers linked to agriculture and agricultural services, commerce and related activities, independent or autonomous professionals, teachers and

public employees in general. It is worth mentioning that, in this context, information about professional activity should be prioritized by the health professional, in order to better classify the main risk factors for cancer and establish the patient's profile in the State of Rondônia. The evaluation of the activities of the population is extremely important, as it also identifies the nutritional, environmental, biological, structural risk and allows the practice of an adequate treatment the chance of maintaining or recovering the patient.

Note that in this study the oncology clinic was responsible for the entry of 89.6% of women with cancer in Rondônia. Entry to the oncology outpatient clinic predominated, according to the diagnosis and previous treatment, with the following situation in decreasing order: women with diagnosis and treatment (62.9%), with diagnosis and treatment (25.2%) and without diagnosis and without treatment (11.9%). According to Soares *et al* [10], the prolonged time between clinical suspicion and confirmation of the diagnosis, diagnosis and non-immediate treatment are factors that more efficiently hinder the resolution of the disease.

Studies of Richards *et al* [38] "Influence of delay on survival in patients with breast cancer: a systematic review", Gullatte, Phillips e Gibson [39] "Factors associated with delays in screening of self-detected breast changes in African-American women, Ramirez, Westcombe, Burgess [40] "Factors predicting delayed presentation of symptomatic breast cancer: a systematic review", Olivotto *et al* [41] "Influence of delay to diagnosis on prognostic indicators of screen-detected breast carcinoma", Gebrim e Quadros [42] "Breast cancer screening in Brazil", Rezende *et al* [43] "Causes of delay in the diagnostic confirmation of breast lesions in women seen at a referral center of the single health system in Rio de Janeiro" and Trufelli *et al* [44] "Analysis of the delay in the diagnosis and treatment of breast cancer in a public hospital" suggest that factors such as the lack of access to health services, delays in investigating suspected breast lesions and in the effectiveness of the treatment of the affected disease contribute to late diagnosis and, consequently, to cancer mortality in women.

Rezende *et al* [43] conducted a study and highlighted that delay in diagnosis is the main cause of disease progression and diagnosis in advanced staging. This statement is corroborated by the authors [45], [46]. É comprovado que o diagnóstico precoce favorece o tratamento da doença e traz maiores possibilidades de cura, sendo assim de extrema importância o investimento em políticas públicas e técnicas que auxiliem no aumento

da taxa de diagnóstico em estágios iniciais [45], [46] and confirmed by [47].

There was a gradual growth from stage I (7.9%) to stage II (17.7%), from stage III (17.7%) to stage IV (20.5%) and non-stage (36.2%). Primary tumors are diagnosed in advanced stages of the disease. Stage II breast cancer (34.2%), stage III (34.2%), stage IV (17.7%) and cervical cancer with stage II (44.8%) and stage III (34.5%) and also bronchial and lung cancer with 90.9% in stage IV.

According to Soares *et al* [10] in 47.6% of women, the diagnosis was late (stages III and IV). Studies by Rezende *et al* [43] identified 51% of women diagnosed with cancer between states II and IV. According to Gonçalves *et al* [48] Stage III represents one third of Brazilian women admitted to oncology services with breast cancer. Thuler's research, Mendonça [47] reveals that 87.7 of the women diagnosed with breast cancer are between stages II and IV, with stage II with 42.8%, stage III with 32.6% and stage IV with 12.3%. These same authors concluded in their study that the median percentage of patients in Brazil between stages II and IV was 45.3%, different from the median of 12.1% found in the United States.

Our findings reveal that 99.2% of diagnoses were confirmed by primary histological examination and 99.9% had a single primary tumor and that among the types of treatment and therapeutic procedures, "Other therapeutic procedures used" prevailed, with a prevalence of 42.4% of the 1st treatment received by the patient, followed by surgery. Studies by Paraguassú-Chaves *et al* [3] on the distribution of cancer, according to diagnosis and number of primary tumors - analytical and non-analytical cases - reveal that 89% of diagnoses were confirmed by histological examination of the primary tumor, 7.2% by exams of images and 2.6% by tumor markers. The study shows 100% evidence of a single primary tumor. In the second phase of the research, one year later, 95.1% of the diagnoses were confirmed by histological examination of the primary tumor, followed by the lowest percentage of imaging tests (2.2%) and tumor markers (0.7%). In 100%, single primary tumors were found.

Another variable reveals that in the oncology clinic, the median between the first consultation and the diagnosis was 15 days, the median between diagnosis and the start of treatment was 49.5 days and the median between registration (1st consultation) and the start of treatment was 1 day. In the study by Soares *et al* [10], the time interval above 6 months between a clinical suspicion and a diagnostic confirmation prevailed. There is a strong association between the time interval between suspicion

and diagnostic confirmation with cancer staging and diagnosis (Adjusted R = 2.97 and 3.04) [10]. This interval was longer than 6 months in almost half of the women (42.7%), it changed in the studied period, due to the slowness of the health system.

In the studies by Paraguassú-Chaves et al [3], in the first phase of the research, the average time since enrollment / diagnosis is 17 days, the period of diagnosis / treatment can reach 62 days and the maximum duration of 2.883 days. In the second phase, if the average enrollment / diagnosis time was 22 days, the diagnosis / treatment period can reach 99 days of average duration and reach a maximum time of 2.005. According to Paraguassu-Chaves *et al* [3], one of the factors in assessing the quality of care of a reference institution in cancer treatment is the time interval between the three most important moments in patient care: an admission data , a diagnosis data and a data from the beginning of the treatment.

The survey also sought to identify whether the main neoplasms in women in Rondônia have a family history of cancer. Approximately 24% of women with cancer have a family history of câncer. Thirty-seven percent of women with breast cancer have a family history of cancer. In the case of cervical cancer, this relative proportion is 18%. The study by Soares *et al* [10] showed a family history of breast cancer, reported by 20.1% of women, also showed an association with the degree of stage at diagnosis. Hoskins *et al* [49] claim that up to 20% of women with breast cancer have a positive family history.

In cross-sectional studies conducted in the United States with an adult female population, 5% to 10% reported a family history of first degree breast cancer, suggesting that these women inherited a genetic mutation that presented an increased risk for the development of breast cancer and ovarian cancer [49].

Researchers Pinho and Coutinho [50] found prevalence rates ranging from 3.7% to 13.10%. Other important studies are those by Pharoad, Day and Duffy *et al* [51] and Maiser *et al* [52]. The first study demonstrated a risk estimate (RR) associated with a family history of cancer of 2.0 (CI = 1.8-2.1) for mother, 2.3 (CI = 2.1-2.4) for sister and 3.6 (CI = 2.5-5) for mother and sister. The second study says that the risks increased when the first degree was diagnosed with cancer before the age of 50. In the research by Souza *et al* [10], regarding cancer cases in the family, 52% of women had some type of cancer. Of these, 14% were 1st degree relatives, 21% 2nd degree and 17% 3rd degree.

According to INCA [53, 54], family history increases the risk of developing breast cancer by 2 to 3 times. In the

study by Haddad, Carvalho, Novaes [31], 53.3% of women had a family history of breast cancer. Nelson, Zakher, Cantor *et al* [55] in "Risk factors for breast cancer in women aged 40 to 49 years: a systematic review and meta-analysis" observed an association between the family history of breast cancer in first-degree parents with the increased risk of developing a disease. Hoskins *et al* [49] in Assessment and counseling for women with a family history of breast cancer: a guide for doctors states that up to 20% of women with breast cancer have a positive family history, while Molina [56] states that, in women with a family history of first degree of breast cancer and who live in places of high incidence, there is an increased risk of 13.3% higher for the development of breast cancer than in those who do not have these characteristics.

Patients with progressive disease represent 71%, followed by patients with partial remission with 14.2% and stable disease with 12.9%. Only 1.9% had complete remission of the disease, that is, without evidence of disease. Breast cancer with 46.7% is the one that best represents the total remission of the disease. The findings of Paraguassú-Chaves et al [3] and Paraguassú-Chaves [5] confirm these results.

As for the distribution of the top 10 neoplasms in women who died of cancer, 6.3% of women diagnosed with cancer in Rondônia, died from the disease. The main victims of deaths were women with cancer of the stomach, liver, bronchi and lungs, breast and cervix.

In the case of breast cancer, Soares et al [10], state that while in the more developed countries the standardized mortality rates for breast cancer showed a reduction, in Brazil there was an increase in breast cancer death rates in their study (from 8.57 to 11.18 / 100.000 women).

According to Berry *et al* [57]; Coleman *et al* [58] unlike most developed countries, in recent years, Brazil has registered an increase in breast cancer mortality rates, mainly due to the late diagnosis and the delay in the implementation of adequate treatment, since this neoplasm is considered curable if diagnosed and treated early. According to Parkin *et al* [59], cervical cancer presents itself as an important public health problem worldwide, especially in the least affected regions, as they present 83% of the total incidence coefficients and 86% of mortality. Ferlay *et al* [60] in "cancer incidence and mortality worldwide" describe that for all neoplasms, cervical cancer has one of the highest potentials for prevention and cure, in addition to a good prognosis when diagnosed early. However, the diagnosis made late may be the main responsible for maintaining the high mortality rates.

Despite the downward trend observed worldwide, cancer mortality rates among women in Brazil are still high, mainly due to late diagnosis [61].

V.   CONCLUSIONS

In 3 years of studies, 5.149 cases of cancer were diagnosed in the State of Rondônia. Of these, 2.758 (53.56%) were diagnosed in women.

The age at diagnosis was predominant in the age group of 40 to 49 years old and from 50 to 59 years old. These two age groups represent 46% of all types of cancer in women in Rondônia. Skin color, brown is predominant with 64.4% of all neoplasms. The highest frequency of cancer (43.3%) in women with little education (who did not finish elementary school). Married women predominate, with 72.9% of new cases.

Ninety-nine percent of patients admitted to referral hospitals specializing in cancer treatment were referred by the Unified Health System - SUS. Eighty-nine percent of women with cancer are smokers and 11% are ex-smokers. 81% of women diagnosed with cancer have never consumed alcoholic beverages and 11% are ex-consumers and 74% of women diagnosed with cancer were born in other states in Brazil and 21.5% are from the state of Rondônia.

Breast cancer is more frequent (35.5%), followed by cervical cancer (22.6%) and skin cancer (16.5%) of new cases. The oncology clinic was responsible for the entry of 89.6% of women with cancer in Rondônia. 35.4% of women with breast cancer, 25% of cervical cancer and 15.2% of skin cancer were admitted to the oncology clinic, while 40.8% of women with breast cancer, 22.4 % of the cervix and 13.2% of skin cancer were admitted by other clinics.

The oncology clinic registered 94.4% of women entering the 3 main entry clinics. Entry by the oncology clinic predominated, without treatment (62.9%), with diagnosis and with treatment (25.2%) and without diagnosis and without treatment (11.9%). Women with diagnosis and without treatment with 44% at stage I, 46.1% at stage II, 46.6% at stage III, 49.1% at stage IV, prevailed in all stages.

Primary tumors are diagnosed in advanced stages of the disease. The main primary tumors diagnosed in an advanced disease process can be represented by stage II breast cancer (34.2%), stage III (34.2%), stage IV (17.7%), cervical cancer, stage II (44.8%), stage III (34.5%) and also bronchial and lung cancer with 90.9% in stage IV, according to the results found in the research.

99.2% of primary tumors had their diagnosis confirmed by primary histological examination and 99.9% had a single primary tumor.

Among the types of treatment and therapeutic procedures, "Other therapeutic procedures used" prevailed with an prevalence of cases (42.4%) of the 1st treatment received by the patient. The second highest frequency is surgery with 16%.

The median between the first consultation and the diagnosis was 15 days, the median between the diagnosis and the beginning of treatment was 49.5 days and the median between registration (1st consultation) and the beginning of treatment was 1 day. Compared to other types of cancer, the median of cancers in women is still the best presented in hospitals specializing in cancer. 23.8% of women with cancer have a family cancer history.

Thirty-seven percent (37%) of women with breast cancer have a family history of cancer and 18% in the case of cervical cancer. At the end of the 1st treatment, patients with disease in progress represent 71%, with partial remission 14.2% and stable disease with 12.9%. Only 1.9% with complete remission of the disease. 6,3% of women diagnosed with cancer in Rondônia, died from the disease. The main victims of deaths were women with cancer of the stomach, liver, bronchi and lungs, breast and cervix.

The results presented are in accordance with the data of most studies carried out by Paraguassú-Chaves *et al* [3], [4], [6] and Paraguassú-Chaves [5] in Rondônia. In recent years, there has been an exponential growth of cancer in women in Rondônia. The installation in Rondônia of the largest cancer hospital in the Amazon is a strong indication of cancer as a public health problem. What is expected is that this research can serve as a basis for planning, executing and evaluating actions to promote, prevent, control and treat cancer in women in Rondônia.

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