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INCIDENCE OF MALIGNANT NEOPLASMS IN PORTO ALEGRE AND SALVADOR IN 2020 ACCORDING TO DATASUS

Incidência de neoplasias malignas em Porto Alegre e Salvador em 2020 de acordo com o DATASUS

Incidencia de neoplasias malignas en Porto Alegre y Salvador en 2020 según DATASUS

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ABSTRACT

Objective: to analyze the incidence of malignant neoplasms in 2020 in two Brazilian cities. **Methods:** this is an ecological study with comparative analysis between the populations of the cities of Porto Alegre, and Salvador. Data were extracted from the DATASUS, analyzed in tables and presented in descriptive. **Results:** The incidence of malignant neoplasms in women aged 30 to 34 years is higher of Porto Alegre than in Salvador, with almost double the number of cases in women compared to men in both cities. In the age 65 to 69, women accounted for 20 more cases in Porto Alegre, and in Salvador, males had 28 more cases. Women underwent more chemotherapy and men more surgical in both cities. **Conclusion:** Differences were observed between the incidence of neoplasms for the cities compared, which could associate determinant variables such as female biological sex with the type of cancer and advanced age. In addition, there is evidence that the southern region of Brazil has a higher incidence than the northeast region, which may be associated with lifestyle habits such as food and culture in the region.

DESCRIPTORS: Medical oncology; Neoplasms; Information systems.

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RESUMO

Objetivo: analisar a incidência de neoplasias malignas em 2020. **Métodos:** estudo ecológico com análise comparativa entre as populações de Porto Alegre e Salvador. Foram extraídos dados do DATASUS, analisados em tabelas e apresentados em gráficos. **Resultados:** A incidência de neoplasias malignas em mulheres entre 30 a 34 anos é maior em Porto Alegre que em Salvador, sendo quase o dobro de casos de mulheres em relação aos homens. Entre 65 a 69 anos, mulheres representaram 20 casos a mais em Porto Alegre, e, em Salvador, o sexo masculino apresentou 28 casos a mais. As mulheres realizaram mais quimioterapias e os homens mais cirurgias. **Conclusão:** Houve diferença entre a incidência de neoplasias nas cidades podendo associar variáveis determinantes como sexo biológico feminino ao tipo de câncer e idade avançada. A maior incidência de casos na região sul pode estar associada aos hábitos de vida como alimentação e cultura desta região.

DESCRITORES: Oncologia; Neoplasias; Sistemas de informação.

RESUMEN

Objetivo: analizar la incidencia de neoplasias malignas en 2020 en dos ciudades brasileñas. **Métodos:** se trata de un estudio ecológico con análisis comparativo entre las poblaciones de Porto Alegre y Salvador. Los datos fueron extraídos del DATASUS, analizados en tablas y presentados en gráficos. **Resultados:** La incidencia de neoplasias malignas en mujeres de 30 a 34 años es mayor en Porto Alegre que en Salvador, con casi el doble de casos en mujeres que en hombres. Entre 65 a 69 años, las mujeres representaron 20 casos más en Porto Alegre, y en Salvador, los hombres tuvieron 28 casos más. Las mujeres se sometieron más a quimioterapia y los hombres más a quirúrgias. **Conclusión:** Se observaron diferencias entre la incidencia de neoplasias, que podrían asociar variables determinantes como el sexo biológico femenino con el tipo de cáncer y la edad avanzada. Existe evidencia de que la región sur de Brasil tiene una mayor incidencia que la región noreste, lo que puede estar asociado con hábitos de estilo de vida como la alimentación y la cultura en la región.

DESCRIPTORES: Oncología médica; Neoplasias; Sistemas de información.

INTRODUCTION

The Brazilian health system faces a large and complex public health problem due to the high incidence, epidemiological, social and economic magnitude of cancer of all types. This disease is characterized by disordered growth of cells, which can invade adjacent tissues or organs via the hematological route. It is known that there are more than a hundred types of malignant cancers, with breast cancer, lung cancer, colon cancer, and prostate cancer being the types that most frequently affect the Brazilian population.[1] More than 50% of cancer cases occur due to the presence of risk factors or harmful habits, such as smoking, a sedentary lifestyle, contact with environmental carcinogens, and an inadequate diet containing an excess of nitrosamines, animal fat, dyes, and preservatives.[2]

The diagnosis and treatment of different types of cancer, at all ages, have made significant advances in the last 20 years, with existing procedures being improved. In addition to traditional methods, alternative treatments have been developed that increase the chance of cure. Among these treatments are immunotherapy, hormone therapy, and gene sequencing.[3] The main goals of the treatment are: cure, prolongation of life, and improvement in quality of life. Among the main forms of cancer treatment we highlight two: chemotherapy and surgery. They can be used together or separately, varying only in terms of the susceptibility of the tumors to each of the therapeutic modalities and the best sequence of administration.[1]

In Brazil, law n. 12,732 of 2012 was sanctioned that guarantees the right of the patient with malignant neoplasia to receive free of charge through the Unified Health System (SUS) all necessary treatments related to their disease. In article 2 of this law, the right to undergo a first treatment is guaranteed within a period of up to sixty days from the day the pathology report is signed, or even in a shorter period, depending on the severity and therapeutic need of the patient.[4]

Cancer is one of the leading causes of death worldwide. Each year 8.2 million people die from the disease.[1] In Brazil, in 2020, 247,269 people were diagnosed with some type of malignant neoplasm. Early detection strategies increase the possibility of cure for some cancers and reduce the morbidity resulting from the disease and its treatment. Early diagnosis, combined with current therapeutic methods, has allowed progressively higher survival rates in cases considered incurable. Cancer mortality rates are still high, despite a declining trend, and each new therapeutic possibility brings hope of longer survival and better quality of life to patients.[4] However, in 2020, cancer patients under investigation or already undergoing cancer treatment suffered a negative impact on their follow-up because the Sars-cov-2 pandemic changed the global health scenario, overloading health systems and causing a lack of continuity of care for these patients, resulting in increased risk of disease progression and death.

Brazil is a heterogeneous country, with a great territorial distance between some regions and states, different climates, habits, and cultures that can interfere in the incidence of cancer cases. For this reason, it is not clear the number of cases of individuals with cancer and the factors involved in the onset of this disease. Therefore, this work, was carried out through data present in the Department of Informatics of the Unified Health System

(DATASUS), and aims to analyze whether there is similarity in the incidence of individuals with malignant neoplasms who started treatment in 2020 in two Brazilian cities located in different regions, one in the South of the country (Porto Alegre, Rio Grande do Sul) and another in the northeast (Salvador, Bahia).

METHOD

This is an ecological study with comparative analysis. In ecological studies, the occurrence of a certain disease and/or health-related condition and the exposure of interest are compared between groups of individuals (populations of countries, regions or municipalities, for example) to verify the possible existence of an association between them.[5] In this sense, the study population consisted of inhabitants of the cities of Porto Alegre and Salvador.

Data were obtained and evaluated from DATASUS and Tabwin.[6] This database allows information to be tabulated according to place of residence and care provided. Thus, it is possible to group the information related to: origin and destination of the disease and, consequently, to group the flow for treatment initiation in the capitals.

For the data search, the selected option was "Epidemiological and Morbidities; Time to oncologic treatment initiation – PANEL – Oncology".7 The following filters were applied:

1. Geographic unit: regarding the geographic unit, the cities of Porto Alegre and Salvador were selected. Porto Alegre is a city located in southern Brazil, in the state of Rio Grande do Sul, and in 2020 had 1,488,252 inhabitants. Salvador is a city located in the northeast region, in the state of Bahia, and, in 2020, had 2,886,698 inhabitants.8-9

2. Period: regarding the analyzed period, the year of diagnosis 2020 and year of treatment 2020 were selected. The year of choice was 2020, because this year is the most current available in DATASUS.

3. Sexes: to evaluate if there is a difference between sexes in both cities, the various female and male sexes were selected.

4. Age range: with regard to age range, to make a comparison between age extremes, the age ranges 30 to 34 years and 65 to 69 years were selected.

5. Typology: regarding the typology applied, the oncology/malignant neoplasms option was selected.

6. Therapeutic modality: regarding the therapeutic modality, chemotherapy and surgery were selected, also with the objective of making a comparison between both modalities.

Given the nature of the study, no informed consent was required. The extracted data were analyzed in tables and were presented in graphs.

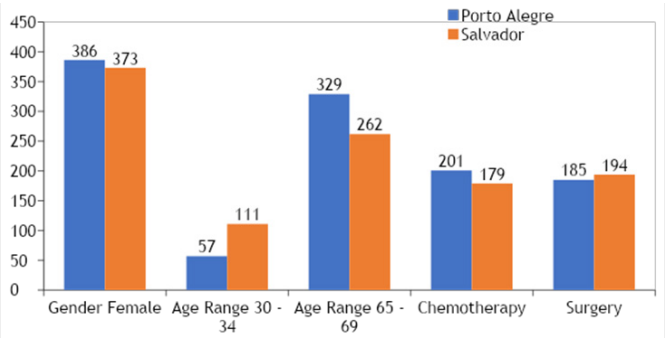
Since we analyzed all the cases available in the indicated period, the graphs are descriptive and represent the population of the object of study. Statistical analyses were not performed, because to infer any information about the significance of the results and identify trends we would have to compare with other years.

RESULTS

Of the total population of Porto Alegre in 2020, 386 women initiated treatment due to malignant neoplasms, while in the same period in Salvador, there were 373 women. Regarding the number of women who underwent treatment due to malignant neoplasms, in Porto Alegre, there were 57 in the age group 30 to 34 years and 329 in the age group 65 to 69 years, while in Salvador, there were 111 women in the age group 30 to 34 years and 262 in the age group 65 to 69 years. Regarding the types of treatment, in Porto Alegre, 201 women underwent chemotherapy and 185 underwent surgery, while in Salvador, 179 women underwent chemotherapy and 194 underwent surgery.

Graph 1 shows the difference between the distribution of the data making a comparison between the cities. It is observed that the numbers remained close in both cities in almost all the variables analyzed, except in the age group between 30 and 34 years, where the city of Salvador presented almost double the number of women who started treatment for malignant neoplasms when compared to Porto Alegre. Moreover, it is observed that women in the age group between 65 and 69 years presented a higher incidence of cases when compared to the age group between 30 and 34 years.

Graph 1 – Incidence of women who started treatment for malignant neoplasms in Porto Alegre and Salvador according to age group and type of treatment in 2020



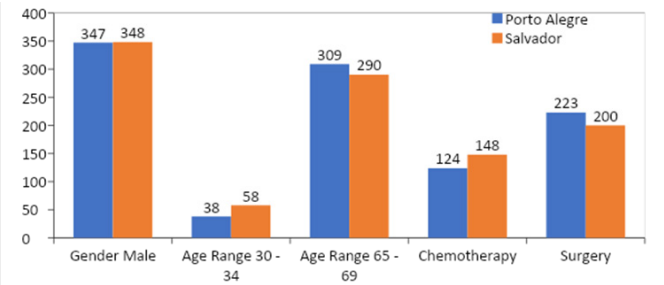
Source: authors.

Regarding the number of men, 347 started treatment due to malignant neoplasms in Porto Alegre, while in the same period in Salvador it was a total of 348 men. Regarding the number of men who underwent treatment due to malignant neoplasms, in Porto Alegre, there were 38 in the age group 30 to 34 years and 309 in the age group 65 to 69 years, while in Salvador there were 58 men in the age group 30 to 34 years and 290 in the age group 65 to 69 years. Regarding the types of treatment, in Porto Alegre, 124 men underwent chemotherapy and 223 underwent surgery, while in Salvador, 148 men underwent chemotherapy and 200 underwent surgery.

Graph 2 shows the difference between the data distribution and the comparison between the cities. As in the female gender, it is again observed that the data distribution is similar in both cities in almost all the variables analyzed, except in the 30-34 age group, where Salvador presents almost twice as many men who

started treatment for malignant neoplasms when compared to Porto Alegre. Moreover, it is observed that men aged 65 to 69 years have a higher incidence of cases when compared to men aged 30 to 34 years.

Graph 2 – Incidence of men who started treatment for malignant neoplasms in Porto Alegre and Salvador according to age group and type of treatment in 2020



Source: authors.

Comparing Graph 1 with Graph 2, it is possible to see that the incidence of malignant neoplasm cases in women is higher in the city of Porto Alegre than in Salvador. In the 30-34 age group, the number of female cases is almost double the number of male cases in both cities. In the 65 to 69 age group, in Porto Alegre, women presented 20 more cases than men (329 women vs. 309 men) and in Salvador, men presented 28 more cases than women (262 women vs. 290 men).

Regarding the type of treatment, women had more chemotherapy than men (201 women vs. 124 men in Porto Alegre; 179 women vs. 148 men in Salvador). However, men had more surgical treatment than women in both cities (185 women vs. 223 men in Porto Alegre; 194 women vs. 200 men in Salvador).

DISCUSSION

From this study it is possible to see that there are important differences to be discussed regarding the incidence of malignant neoplasms related to gender, age groups and treatment methods in the cities of Porto Alegre and Salvador. Porto Alegre has a higher incidence of cases, although Salvador has almost twice the population of the capital of Rio Grande do Sul. This occurs because, although the incidence of malignant neoplasms in the cities of Porto Alegre and Salvador are very similar, the gaucho capital has important cultural factors, such as high rates of smoking and elderly people, which are able to impact the increased chance of the population to develop neoplasms.[10-11] Consequently, we observed an increase in the number of cases that start treatment, both through chemotherapy and surgical procedures.

It is possible to observe that the incidence of cancer in women, especially in the 30-34 age group, is higher than in men. This is because women have a higher incidence of cancer in parts of the body that are exclusively female, such as the uterus. Specifically in the age group between 30 and 34 years, the sum of women from both capitals diagnosed with malignant neoplasms of the reproductive system, exclusively female, results in a total of 199. In the male group, on the other hand, the sum of men diagnosed with malignant neoplasms of the reproductive system, exclusively males in both capitals, is 16, a significantly lower total. Still, breast cancer, although it occurs in both sexes, is predominantly more common in females, contributing to the result of the higher incidence of cancer in women.[1,10]

Rio Grande do Sul is the state with the highest rates of people over 65 years of age.[11] This explains why the capital of Rio Grande do Sul has a considerably higher incidence of cases in the 65 to 69 age range that began their treatments in the same year they were diagnosed, and at the same time has significantly lower numbers of individuals in the 30 to 34 age range.

The fact that chemotherapy treatment is practically similar in numbers in both capitals can be explained by the fact that Porto Alegre is the capital with the highest incidence of breast cancer in the country.[12] Chemotherapy is now considered one of the most used treatment methods in cases of breast cancer10 and the earlier the patients start treatment, the better the prognosis will be.[13]

Once again the capital of Rio Grande do Sul outranks the capital of Bahia in terms of numbers. Porto Alegre had 408 patients who underwent surgery as a form of treatment, while Salvador had 394 patients who underwent the same modality for treatment. Two factors may contribute to such results: first, the southern region has the highest rates of tobacco consumption in the country, increasing the number of individuals with lung malignancies;[14] second, the capital of Rio Grande do Sul has more obese people than the capital of Bahia, obesity being a risk factor for the development of any type of cancer.[15-16]

The fact that the number of surgeries is higher in men may be explained by the fact that some malignant neoplasms exclusive to men, such as those of the testicle and prostate, are treated exclusively surgically when diagnosed early.[17-18]

According to data published by INCA, in Salvador, Bahia, the estimates of the number of new cases of cancer for the year 2020 corresponded to a total of 7,860 and for Porto Alegre, the estimates corresponded to a total of 6,440.19 However, in Porto Alegre, in the year 2020, 9,874 people were diagnosed with some type of malignant neoplasm, exceeding the estimated numbers. The main types of cancer diagnosed in Porto Alegre were: colon cancer with 864 cases; breast cancer with 815 cases; cervical cancer with 620 cases; and stomach cancer with 606 cases. In the capital of Bahia, in 2020, 9,683 people were diagnosed with some type of malignant neoplasm, the main types being: breast cancer with 1,321 cases, prostate cancer with 1,390 cases; other malignant skin neoplasms with 821 cases; and cervical cancer with 575 cases. These data cannot be discussed with our results, because no studies with the incidence stratified according to age, sex, and type of treatment were found in the literature.

Still according to data released by INCA, it is important to highlight the number of deaths from cancer in both capitals.[19] In Porto Alegre, in 2020, 2,663 people died due to cancer, the main cause being malignant neoplasm of the digestive organs (903), the second malignant neoplasm of the respiratory system and intrathoracic organs (494), and the third malignant neoplasm, declared or presumed as primary, of the lymphatic,

hematopoietic, and related tissues (248). Malignant neoplasms of the breast ranked 4th (230). No studies were found that indicate cancer deaths in the city of Salvador, a fact that demonstrates an important niche for future research. Our data do not present results related to deaths in the cities of Porto Alegre and Salvador, because this was not the main focus of the study.

This article has some limitations. The first one results from the pandemic of COVID-19 that occurred in the year 2020. The health systems of our country were overloaded and the veracity of the data entered in the platforms ended up being affected. It was necessary to concentrate the updating of data about the pandemic in order to contain and face the disease, and thus the updating of data about other pathologies was harmed and in a secondary plan. Even so, the overload was such that even the data on COVID-19 ended up being underreported.[20] Consequently, the second limitation became the lack of data in DATASUS, the main database used in this study, and this limitation was identified throughout the research.

CONCLUDING REMARKS

Through this study it was possible to see that, quantitatively, there is a difference in the incidence of cancer in the Brazilian reality. Two states, located in extreme regions of the country, have different incidences of malignant neoplasms and initiation of treatment. This reflects the need for more means of social engagement and mobilization that focus on health and education of the population about the reality of the disease, so that, in this way, there is more adherence to treatment of cancer in its early stages, thus reducing the risks of spread and greater chances of cure.

Besides focusing on early treatment, health professionals should also engage in campaigns promoting healthy lifestyle habits, such as a better diet, cessation of alcoholic beverages and tobacco use, which will serve as a form of prevention of malignant neoplasms.

Furthermore, through this study, it was possible to realize that the DATASUS, used as a source and tool for data acquisition in this study can assist in the survey of health information and, in this way, for the formulation of public policies in Brazil. This information can be used by health professionals and managers to plan actions in health and at work.

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