Female breast cancer hospitalizations in the metropolitan region of Porto Alegre

ABSTRACT | Objective: to characterize hospitalizations for female breast cancer in the public network of the Metropolitan Region of Porto Alegre from 2016 to 2018. Method: population-based epidemiological study, observational, cross-sectional and retrospective study with analysis of secondary health data accessed in the Hospital Information System of the Unified Health System of hospitalizations with a diagnosis of breast cancer. The extracted variables were hospitalizations by age group, race/color, length of stay, deaths, mortality rate and hospital expenditure. Results: In this period, 7,049 hospitalizations occurred, 3,807 (54%) between 50 and 69 years of age. The average stay in hospital was 4 days and the average total cost/year by SUS was 375,374.604 reais. In the triennium there were 504 (7.15%) due to the disease. Conclusion: Hospitalizations for breast cancer in women in the RMPA have a direct impact on thein crease in expenses and on the longer use of hospital beds, making assistance to this type of disease increasingly costly.
Keywords: Breast cancer; Hospitalizations; Public health; Epidemiology.

RESUMEN | Objetivo: caracterizar lashospitalizaciones por cáncer de mama femeninoenlared pública de laRegión Metropolitana de Porto Alegre de 2016 a 2018. Método: estudio epidemiológico poblacional, observacional, transversal y retrospectivo conanálisis de datossecundarios de salud a los que se accedeenel Sistema de Información Hospitalaria del Sistema Único de Salud de hospitalizacionescon diagnóstico de cáncer de mama. Lasvariables extraídas fueronhospitalizaciones por grupo de edad, raza/color, tiempo de estancia, defunciones, tasa de mortalidad y gasto hospitalario. Resultados: En este período ocurrieron 7.049 hospitalizaciones, 3.807 (54%) entre 50 y 69 años. La estadíapromedioenel hospital fue de 4 días y elcosto total promedio/año por el SUS fue de 375.374,604 reales. Eneltrieniohubo 504 (7,15%) debido a laenfermedad. Conclusión: Lashospitalizaciones por cáncer de mama enmujeres de la RMPA tienenun impacto directoenel aumento de los gastos y enelmayor uso de lascamas hospitalarias, haciendo que laatención a este tipo de enfermedadessea cada vez más costosa.
Palabras claves: Cáncer de mama; Hospitalizaciones; Salud pública; Epidemiología.

RESUMO | Objetivo: caracterizar as internações por câncer de mama feminino na rede pública da Região Metropolitana de Porto Alegre de 2016 a 2018. Método: estudo epidemiológico de base populacional, observacional, transversal e retrospectivo com análise de dados secundários em saúde acessados no Sistema de Informações Hospitalares do Sistema Único de Saúde das internações com diagnóstico de câncer de mama. As variáveis extraídas foram internações por faixa etária, raça/cor, tempo de permanência, óbitos, taxa de mortalidade e gasto hospitalar. Resultados: Nesse período ocorreram 7.049 internações, 3.807(54%) entre 50 a 69 anos. A média de permanência na internação foram 4 dias e o custo médio total/ano pelo SUS de 375.374,604 reais. No triênio ocorreram 504 (7,15%) pela doença. Conclusão: As internações por câncer de mama em mulheres na RMPA repercutem diretamente no aumento de gastos e no mais prolongado uso de leitos hospitalares, tornando a assistência a esse tipo de agravo cada vez mais oneroso.
Palavras-chaves: Câncer da mama; Internações; Saúde Pública; Epidemiologia.

Daiana Almeida da Silva
Assistance nurse at Hospital Mãe de Deus.
ORCID: 0000-0002-5767-9822

Ataliba Antonio da Silva das Neves
Nurse. Centro Universitário Ritter Dos Reis.
ORCID: 0000-0003-0393-1647

Thainá Dias Luft
Nursing student at Centro Universitário Ritter Dos Reis (UNIRITTER).
ORCID: 0000-0002-3690-2546

Gabriela Oliveira Zavaglia
Research nurse at Hospital Moinhos de Vento.
ORCID: 0000-0001-5419-665X

Nathalia Torres Mendes
Nurse at Hospital São Lucas da PUC-RS and postgraduate student in adult ICU and assistance to critical patients at Facudade Dom Alberto.
ORCID: 0000-0002-2321-818X

Luciana Medeiros Paungartner
Volunteer Researcher at the Pediatrics and Child Health Program at PUCRS. Nurse - Postgraduate Student in General ICU and Management of Intensive Care for Critical Patients - Instituto Faveni.
ORCID:0000-0003-1983-1114

Amanda Pereira Ferreira Dellanhese
Nurse. PhD in Child and Adolescent Health from the Federal University of Rio Grande do Sul. Collaborating Professor of the Integrated Multiprofessional Residence in Collective Health at the Federal University of Rio Grande do Sul.
ORCID: 0000-0002-1515-9693

Morgana Thaís Carollo Fernandes
Nurse. Post-doctoral student in Child Health from the Pontifical Catholic University of Rio Grande do Sul (PUCRS), with a scholarship from the Universityof Toronto (UofT). Collaborating Professor of the Multiprofessional Residency in Child Health and Associate Researcher of the Extension and Research Program in Urban Health, Environment and Inequalities at the Federal University of Rio Grande do Sul (UFRGS).
ORCID:0000-0002-7989-294X

INTRODUCTION

Noncommunicable diseases and conditions (NCDs) are already the main responsible for the illness and death of the population in the world, mainly in low and medium development countries, with emphasis on cardiovascular and cancer. Malignant neoplasms, global demographic and epidemiological transitions signal an increasing impact on the disease burden in the coming decades. [1]

According to the International Agency for Researchon Cancer (IARC), after non-melanoma skin cancer, breast cancer is the most prevalent in women in the world, representing 24,2% of the total female cancer cases with an incidence in 2018. The fifth leading cause of cancer death in general and the most frequent in women with a mortality rate of 18,9 per 100 thousand inhabitants. [1]

The magnitude of this disease in Brazil represents a relevant point of attention for public management. The Ministry of Health's projections for the 2020-2022 three-year period are that 66.280 new cases will arise, corresponding to an estimated risk of 61 new cases per 100.000 women. [2] Still, mortality rates in Brazil remain high and correspond to approximately 13/100.000 deaths in 2018. [3] In interregional analyzes, differences between incidence rates can be seen, with the South being the region with the highest incidence with an estimated risk of 7,06 per 100 inhabitants. [1]

In developing countries like Brazil, the late diagnosis and treatment of breast cancer may reflect a reduction in the survival of people diagnosed up to five years, representing the most significant failures in the approach to breast cancer related to diagnosis and treatment, compared to developed countries (50 to 60% versus 85%). [4]

A previous research proposed to study hospitalizations in the Unified Health System (SUS) for this neoplasia found that the analysis of hospital values is an important factor to identify finite and scarce resources in health, defining which regions and procedures are more and less frequent, information that is essential for the distribution of health resources. [5]

Intensify interregional epidemiological analyzes of female breast cancer, in order to support effective evaluation and prevention measures, as well as the qualification of health policy planning aimed at reducing the impact of the disease on the population, understanding behavior and variables involved to support the planning, implementation and evaluation of SUS policies and actions aimed at this disease should be encouraged. The objective of this study was to characterize hospitalizations for female breast cancer in the Public Network of the Metropolitan Region of Porto Alegre between 2016 and 2018.

METHOD

This is an epidemiological, population-based, observational, cross-sectional and retrospective study with analysis of secondary health data accessed in the Hospital Information System of the Unified Health System (SIH-SUS). Data were obtained by consulting the public files of SIH/SUS available in the database of the Department of Informatics of the Unified Health System in Brazil (DATASUS), in RD format. [6]

The hospitalization diagnosis evaluated in the study, considered in the Inpatient Hospital Admission (IHA), was group C50 of the International Classification of Diseases (ICD-10), a malignant breast neoplasm as detailed below in Chart 1. [7]

For the descriptive analysis, male hospitalizations were suppressed due to the low representativeness and because it is not the focus of this study. The extracted variables were: hospitalizations by age group, race/color, length of stay, deaths, mortality rate and hospital expenditure.

SIH / SUS uses the Inpatient Hospital Admission (IHA) as its main data collection instrument, which presents two models: (i) IHA-1, or Normal Type and (ii) IHA-5, or Long Stay Type, for data from chronic or psychiatric patients requiring continuity of treatment. [8] The processing competence period was the same as the month prior to the presentation of the IHA for billing, which generally corresponds to the month of discharge.

The data were extracted in the period of July and August 2020, using two tabs made available by the Ministry of Health: the TabNET system, which crosses basic variables directly on the internet and TabWIN for more advanced tabs on the captured files. Data analysis was performed using Microsoft Excel® and presented in a descriptive and comparative manner in absolute and relative frequency, categorized by age group and race/color.

As for ethical aspects, the SIH/SUS files are in the public domain, availa-

Chart 1 - Causes of hospitalization assessed in the study.		
Grupo	Diagnóstico	CID 10
Neoplasia maligna da mama CID10: C50	Neoplasia maligna da porção central da mama	C50.1
	Neoplasia maligna do quadrante superior interno da mama	C50.2
	Neoplasia maligna do quadrante inferior interno da mama	C50.3
	Neoplasia maligna do quadrante superior externo da mama	C50.4
	Neoplasia maligna do quadrante inferior externo da mama	C50.5
	Neoplasia maligna da porção axilar da mama	C50.6
	Neoplasia maligna da mama com lesão invasiva	C50.8
	Neoplasia maligna da mama, não especificada	C50.9
Source: Brazil/MH. Ordinance No. 221, of April 17th, 2008.		

ble on the internet and released by the Ministry of Health in a format that preserves the identification of the subjects, guaranteeing confidentiality. According to Resolution 510/2016-National Health Council, the study is not subject to the CEP/CONEP system. [4]

RESULTS AND DISCUSSION

This study made it possible to characterize hospitalizations for female breast cancer, in the Public Network of the Metropolitan Region of Porto Alegre (RMPA), between the years 2016 to 2018 allowing to identify 7.049 hospitalization records in the evaluated three-year period.

It was observed that in 2016 the largest number of hospitalizations occurred in the age group of 50 to 59 years, making up 28,48% of the total cases of patients hospitalized for the disease, followed by the age group of 60 to 69 years representing 25,55 %. Still in relation to the profile of women hospitalized for breast cancer in the RMPA, when observed by race/color, white was predominant in the sample, with 82,54%, followed by black with 7,16%. Table 1 shows the breakdown by age group and race/color of the frequency of hospitalizations for registered female breast cancer.

Another study carried out by the Na-

tional Cancer Institute (INCA) based on the Hospital Cancer Registries (RHC), which are available in hospitals that are part of the specialized care network in Oncology at SUS, describes that in the period from 2013 to 2015 were registered 67.733 women who arrived at the hospital without diagnosis or treatment, with a median age of 55 for those who had their first consultation for the treatment of cancer. [2]

Guidelines for the early detection of breast cancer in Brazil recommend identification through screening and early diagnosis by means of biennial mammography, for women aged 50 to 69 years and clinical breast examination for women over 40 years old. [4] Such measures contribute to a better prognosis, mitigating the impact of the disease and optimizing therapeutic planning. [2]

However, the information available on the breast cancer scenario reveals concern with regard to primary prevention in Brazil, due to the increased frequency of risk factors and the decrease in protective factors, which do not reach the recommended levels of health promotion. [2] The consequences of these failures show the late diagnosis of breast cancer, contributing to the increase in hospitalization rates. The early diagnosis of breast cancer has great significance

and influence on the prognosis of the disease, generating a more effective and less aggressive treatment. [9]

The treatment of breast cancer must be done through the Units and Centers of High Complexity Assistance in Oncology that make up the tertiary level assistance. This level of care must be able to determine the extent of the cancer, define treatment and care, ensuring the quality of cancer care to the patient. [2] Analyzing the results of health care related to the place of hospitalization can subsidize the quality of regionalization made by the reference services and the possible barriers of access faced by individuals in the search for quality health care. [10]

The mortality rate in the analyzed period was 504 (7,15%) in the RMPA. It was evidenced that the total number of deaths and mortality rate were higher in the age groups over 40 years old, especially between 50 and 69 years old, representing 152 (56,55%) of deaths from breast cancer, as shown in Table 2.

Duarte and Teixeira (2018) affirm that the greatest increase in the capitals of Brazil may be related to the flow of patients from less populous regions who move to hospitals in large centers, seeking a better offer in services and enabling agility in early diagnosis and adequate treatment. [11]

Another study evaluated the evolution of the breast cancer mortality trend by age groups in Brazil between 1980 and 2011, identified an increase in the mortality rate due to this type of cancer among all ages. However, it points out that women under 50 years old have a greater variation in the increase in mortality rates. [12]

In contrast, an analysis carried out in São Paulo, between 1999 and 2012, with information on 358.756 hospital admissions related to breast cancer, highlighted the increase in mortality in the 20 to 60 age group, over the 13 years analyzed. The age group that suffered the greatest variation was 20 to 39 years old, increasing by 2,11%, followed by

Table 1 – Hospitalizations for Female Breast Cancer according to Age and Race/color in the Metropolitan Region of Porto Alegre between 2016 and 2018.

Faixa Etária	Branca		Preta		Parda		Amarela		Total	
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%
15 a 20 anos	9	0,13	1	0,01	-	-	-	-	12	0,17
20 a 29 anos	69	0,98	9	0,13	2	0,03	-	-	94	1,33
30 a 39 anos	449	6,37	50	0,71	13	0,18	3	0,04	559	7,93
40 a 49 anos	1.197	16,68	92	1,31	34	0,48	4	0,06	1.423	20,19
50 a 59 anos	1.622	23,01	169	2,40	59	0,84	6	0,09	2.006	28,46
60 a 69 anos	1.497	21,24	122	1,73	37	0,52	1	0,01	1.801	25,55
70 a 79 anos	753	10,68	50	0,71	-	-	-	-	883	12,53
80 anos ou mais	222	3,15	12	0,71	3	0,04	-	-	271	3,84
Total	5.818	82,54	505	7,16	160	2,27	14	0,20	7.049	100

Source: Ministry of Health - SUS Hospital Information System (SIH/SUS). Note: 552 hospitalizations were excluded in which there was no information on race/color and age group.

that of 60 years old or more, increasing by 1,96%. [9]

As breast cancer is one of the biggest causes of death in Brazil, it is important for health managers to recognize the quality of care in the territory, the resources available and the demands of registered users. The incorporation of geographic flow mapping contributes to the identification of areas at risk for cancer and the direction of health actions. [13]

It is noteworthy that breast cancer mortality rates are directly related to women's access to health services and quality of care. Breast cancer presents a challenge for the health sectors, since the screening, early detection and treatment programs face difficulties to guarantee assistance to the entire population and this can be identified in this study, through the high number of hospitalizations of users in municipalities other than those of their origin. [1]

It was found in this research that a hospitalization for breast cancer has an average duration of 4 days, where the longest hospital stay is between the age group of 80 years or more with an average of 5,5 days. The total amount spent on breast cancer hospitalizations at RMPA was R$ 13.513.522,46 with an annual average of R$ 375.375,624 reais. The age group with the highest average expenditure per hospital stay was between 20 and 29 years of age, with R $ 2.552,27 reais. Still, during the study period, there were 3210 hospitalizations for breast surgery, 1027 of which were cancer. The total amount involved in these procedures was 1.887.282,87, being 453.941,73 with professionals. 6 Graph 1 shows the average length of stay by age group compared to the average value of hospitalizations in the 2016-2018 three-year period.

In 2016, the Oncology Observatory reported that spending by cancer patients in hospital between 1990 and 2015 increased from R $ 470 million to R $ 3,3 billion. As for breast cancer, the cost was R$ 315.760,62 and there was an increase in values in more advanced stages of the disease and in post-menopausal women. In Brazil, the Federal Court of Accounts in 2010 reported that 60,5% of female breast cancer cases are diagnosed in stages III and IIII, with an adjection between 60% and 80% and a worse prognosis.

This finding corroborates the fact that health care in large urban centers is still a challenge for managers. Thus, the qualification and the best use of specialized resources, such as referrals to health centers, better organization of flows and integration of networks, adjustments in the relationship between reference and counter reference in the municipalities, would help guarantee comprehensive care, encompassing specialized procedures and support networks for diagnosis and treatment. [14] This fact may be related to the difficulty in building health care networks that reach municipalities with low technological density [15], such as those inserted in peripheral regions and large urban centers.

The strategies for the control of ma-

Figura 1 - Deaths due to Female Breast Cancer according to race/color in the Metropolitan Region of Porto Alegre between 2016 and 2018.

	BRANCA	PRETA	PARDA	SEM INFORMAÇÃO	TOTAL
ÓBITOS	418	38	10	38	504
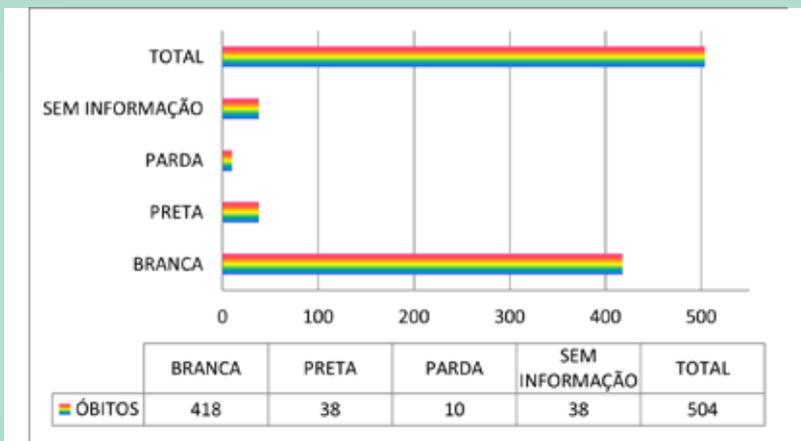
Source: Ministry of Health - SUS Hospital Information System (SIH / SUS).

Figure 2 - Deaths due to Female Breast Cancer by age group in the Metropolitan Region of Porto Alegre between 2016 and 2018.

	20-29 ANOS	30-39 ANOS	40-49 ANOS	50-59 ANOS	60-69 ANOS	70-79 ANOS	80+ ANOS	TOTAL
ÓBITOS	3	25	70	152	133	71	50	504
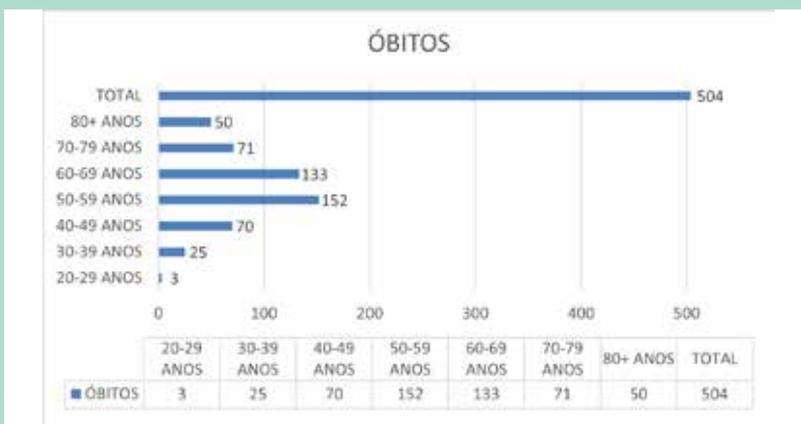
Source: Ministry of Health - SUS Hospital Information System (SIH / SUS). Note: the age group of 15 to 19 years was suppressed because they did not present deaths.

Figure 3. Comparison of average length of stay by age group and average value of hospitalizations for Female Breast Cancer in the Metropolitan Region of Porto Alegre between 2016 and 2018.
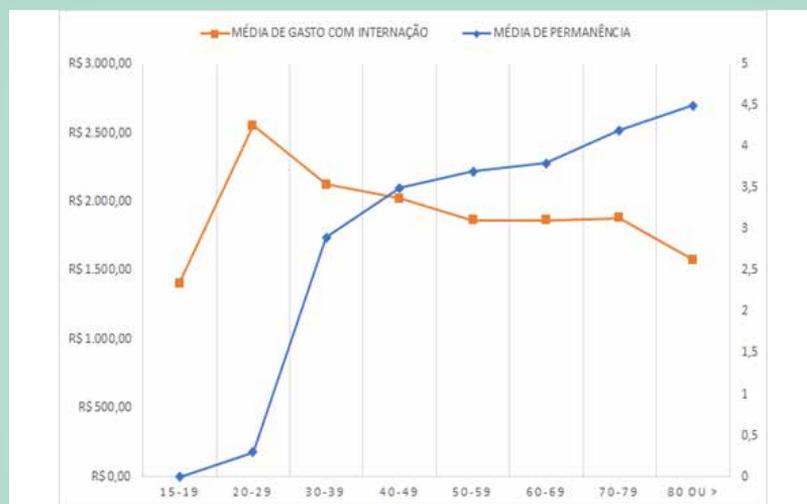
Source: Ministry of Health - SUS Hospital Information System (SIH / SUS).

lignant neoplasms in the country face problems that affect from the formulation of policies, to the development of actions and services in favor of society, representing a challenge for the Unified Health System (SUS) for demanding organization and efficiency in ensuring population access to health services for diagnosis and treatment. [10]

Despite the limitations of the use of ecological studies with secondary health data, especially in relation to the hospital Information System, given the problems of filling out Inpatient Hospital Authorization, this methodology has been increasingly used in health research. For the present research, the period from 2016 to 2018 was used because it represents the most current data available on the platform.

CONCLUSION

It is concluded that of the 7.049 thousand hospitalizations in the evaluated period, 54% were in the age group between 50 and 69 years and the deaths of women hospitalized for cancer corresponded to 504 (7,15%). The average stay in hospital was 4 days and the annual spending by the Unified Health System was 375.374,604 reais, showing the age group with the highest average expenditure per hospitalization between 20 and 29 years of age with R$ 2.552,27 reais. It is evident that hospitalizations for breast cancer in women in the public network in the Metropolitan Region of Porto Alegre have had an impact on the increase in expenses and intensification in the use of hospital beds, making assistance to this type of disease increasingly costly.

It can be inferred that hospitalizations were characterized by high incidence, short duration and low lethality in the public network. New analyzes are suggested, mainly regarding the source--destination flows of hospitalizations in order to guide the planning of assistance, aiming at improving the distribution of resources ❦

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