10-YEAR ANALYSIS OF BREAST CANCER IN A HOSPITAL IN SOUTHERN BRAZIL

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Abstract: Introduction: the world's incidence of malignant neoplasms increased 20% in the last decade and breast cancer is the most commonly diagnosed in women worldwide. Although the etiology of breast cancer is influenced by genetic components, environmental risk factors prevail making possible to affirm that the key to reducing the rates of this neoplasm lies in prevention. **Objectives:** determine the profile of patients affected by breast cancer, allowing a better view of the disease's current panorama in the given location, directing preventive and diagnostic strategies. **Methods:** descriptive and retrospective study, carried out at a Cancer Institute, based on the data collected and stored in the institution's Hospital Cancer Registry over 10 years (2010 - 2019). The data analysis considered only patients affected by breast cancer, including male and female patients, and the epidemiological variables of their profiles went through prevalence calculation. **Results:** over the decade, 864 patients were diagnosed with breast cancer, corresponding to 18.8% of the total. In the sample, female (99.4%), white (90.9%), married (56%) and low educational level individuals (29.4 %) prevail. The majority of women (60.7%) had their diagnosis before the age of 60, while 100% of men were diagnosed after this age. Positive family cancer history, non-specific for breast cancer, was present in 39.1% of women and 40% of men. Smoking was present in 43.2% of females and 40% of males and alcohol consumption in 44.4% of females and 20% in males. **Conclusion:** the determination of the patient's profiles provides essential information so that it is possible to change the current scenario of breast cancer in the region, through the elaboration of public health policies and preventive programs aimed at the specific portion of the population. The study will also contribute to health planning and management by providing information that can help the establishment of breast cancer control strategies.

Keywords: Breast Neoplasms. Database. Health Profile. Epidemiology.

INTRODUCTION

Considered a public health problem by the World Health Organization (WHO), the disease characterized by disorderly growth of mutagenic cells called cancer, is one of the biggest causes of morbidity and mortality in the world[1]. The International Agency for Research on Cancer (IARC) states that the world's incidence of malignant neoplasms increased 20% in the last decade, with breast, prostate and lung cancer in the lead (BRASIL, 2019; JAMAL *et al.*, 2014).

There are several factors related to the increase in the occurrence of Chronic non-communicable diseases (NCDs) like cancer, such as demographic, epidemiological and nutritional transitions in the population that favor their exposure to carcinogenic agents (BRASIL, 2019; DANTAS *et al.*, 2019; DUGNO *et al.*, 2014). Although cancer is distributed relatively evenly throughout the world, developed and developing countries have higher rates of new cases due to the factors previously mentioned (BRASIL, 2019; DANTAS *et al.*, 2019; DUGNO *et al.*, 2014; ASSIS, BARRETO, e LIMA, 2019).

Breast cancer is the most commonly diagnosed cancer in women worldwide and its highest incidence rates are seen in Europe (BRASIL, 2019; JAMAL *et al.*, 2014). Statistics reveal that breast cancer is also the most common among Brazilian women, and despite its excellent prognosis when diagnosed early, it is still one of the main causes of cancer death in the country (DANTAS *et al.*, 2019; DUGNO *et al.*, 2014; ASSIS, BARRETO, e LIMA, 2019; NUNES *et al.*, 2020). The southern region of Brazil, particularly the state of Rio Grande do Sul (RS), is especially affected by

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the disease, partially due to its population profile, which is similar to the European one, presenting comparable risk factors, such as the predominance of white individuals, late pregnancies and better socioeconomic level (BRASIL, 2019; DANTAS *et al.*, 2019; DUGNO *et al.*, 2014; ASSIS, BARRETO, e LIMA, 2019; NUNES *et al.*, 2020).

Although the etiology of breast cancer is influenced by genetic components, environmental risk factors prevail and the fact that many of them are preventable makes it possible to affirm that the key to reducing the rates of this neoplasm lies in prevention (BRASIL, 2019; JAMAL *et al.*, 2014). In addition, for cases considered unavoidable, early diagnosis should be encouraged, as it is directly related to the disease's good prognosis (DUGNO *et al.*, 2014; NUNES *et al.*, 2020).

OBJECTIVES

The aim of the study is to determine the profile of patients affected by breast cancer, allowing a better view of the disease's current panorama in the given location, directing preventive and diagnostic strategies (BRASIL, 2019; DANTAS *et al.*, 2019; DUGNO *et al.*, 2014; NUNES *et al.*, 2020). Besides, the information obtained will contribute to health planning and management at the hospital and regional level (DUGNO *et al.*, 2014).

METHODS

Descriptive and retrospective study, carried out at the Cancer Institute of the Pompeia Hospital of Caxias do Sul/RS (INCAN), based on the data collected and stored in the institution's Hospital Cancer Registry (HCR) over 10 years (2010 - 2019). The data analysis will take place in a Microsoft Excel spreadsheet, in which only patients affected by breast cancer, defined by the ICD (International Classification of Diseases) C50, will be considered. The epidemiological variables will go through prevalence calculation.

The Pompeia Hospital in Caxias do Sul/RS is a reference for the treatment of cancer for approximately 1.079.881 individuals, from 48 municipalities in the northeastern region of the state. INCAN has a complete team and structure, carrying out an average of 1900 medical consultations per month, about 1600 chemotherapy sessions and 120 hospitalizations in the same period. The institution has maintained its HCR active since 2010, registering all patients diagnosed with cancer treated in its structure by the Unified Health System (UHS) (Hospital Pompeia, 2022).

This study respects the ethical precepts of Resolution nº 466/2012 of the National Health Council and is approved by the Research Ethics Committee of Hospital Pompeia, by the nº 311.052.

RESULTS

Over the decade from 2010 to 2019, 4793 patients with malignant neoplasms passed through the Pompeia Hospital, of which 18.8% were diagnosed with breast cancer as the primary site. The new cases of this cancer have been distributed evenly over the years, always assuming the first place among the most common of each year, except for some occasions in which the presence of prostate cancer was more recurrent. Nevertheless, in analyzes focused on the female sex, breast cancer has always kept the lead.

When it comes to the profile of the patients, female (99.4%), white (90.9%), married (56%) and low educational level individuals (Incomplete Elementary Education, 29.4 %) prevail. While these variables did not undergo major changes in terms of gender, the age analysis showed notable differences (Figure 1).

The average age of the affected women was 57 years old, and the majority of them (60.7%)

had their diagnosis before the age of 60, this differs from the higher average age found in men, 68 years old, and the fact that 100% of these individuals were diagnosed after the age of 60. However, age was not the only variable with large differences between the sexes, since the clinical stage of breast cancer at diagnosis is more advanced in males (Figure 2).

Through the analysis of risk factors, it was possible to notice the presence of a positive family cancer history, non-specific for breast cancer, in 39.1% of women and 40% of men. When it comes to smoking, the prevalence of individuals characterized as ex-users or users of tobacco was 43.2% in females and 40% in males. Women also had higher rates of alcohol consumption, with 44.4%, contrasting with only 20% of the male portion of the sample.

DISCUSSION

Of the 184 countries that make up the GLOBOCAN database, breast cancer is the most common diagnosis of cancer in women in 140, with Brazil being one of them (JAMAL *et al.*, 2014). The South Region of Brazil displays alarming statistics and a tendency to worsen when it comes to breast cancer, and the state of Rio Grande do Sul is the most impacted, making research necessary to elucidate the determinants of its high incidence with the intention of implementing control measures (DUGNO *et al.*, 2014).

In the profile analysis, the predominance of white individuals found corroborates with worldwide studies and research conducted in the same region of Brazil, disagreeing with authors such as Assis *et al.* (2019), who found a higher prevalence of pardo patients when studying individuals from the North of the country. These discrepancies are justified by the different population profiles inherent to each region (DANTAS *et al.*, 2019; DUGNO *et al.*, 2014).

Although many authors do not consider marital status to be a relevant factor, it is necessary for the complete analysis of the patient's profile. In this study, there was a predominance of married individuals and this marital status is the most prevalent in studies that assess this variable. The education of patients is also poorly analyzed and, unlike marital status, the studies covering it do not reach a consensus on which is the most prevalent. However, when low, education can be related to late diagnosis and mortality due to access to health services (DANTAS *et al.*, 2019; DUGNO *et al.*, 2014).

When it comes to the sex most affected by breast cancer, there is unanimity in pointing out the female sex as the most common (BRASIL, 2019; JAMAL *et al.*, 2014; DANTAS *et al.*, 2019; DUGNO *et al.*, 2014; ASSIS, BARRETO, e LIMA, 2019; NUNES *et al.*, 2020). This is because many of the etiological factors of this cancer are related to reproduction and female hormones, being nulliparity, late pregnancy, age at menarche and menopause some examples (BRASIL, 2019; DANTAS *et al.*, 2019; ASSIS, BARRETO, e LIMA, 2019; NUNES *et al.*, 2020).

Although in recent years its incidence has increased by 26%, male breast cancer is rare, representing less than 1% of all breast cancer cases. The causes of breast cancer in men are still unknown, but some relations with high levels of estrogen and gynecomastia are explored (ARAÚJO *et al.*, 2018).

This predominance of breast cancer cases in women means that the greatest number of preventive measures are aimed at this public, favoring early diagnosis in this sex, while concomitantly leading to late diagnosis in men. The average male age at diagnosis described in the literature, 68 years, agrees with the information found in the present study. The delay in the diagnosis of men with this type of cancer also contributes so that the neoplasm, when detected, is at a more
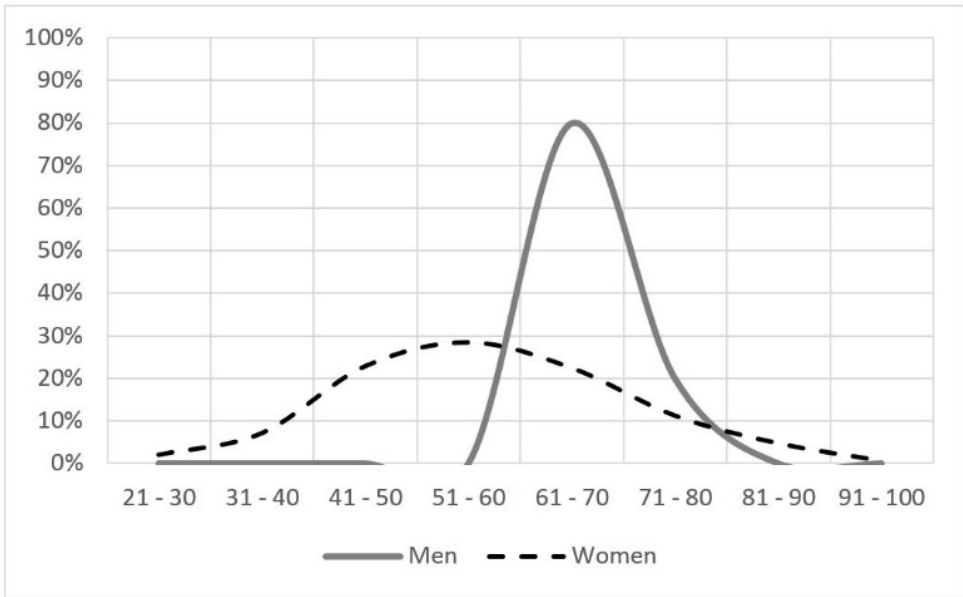
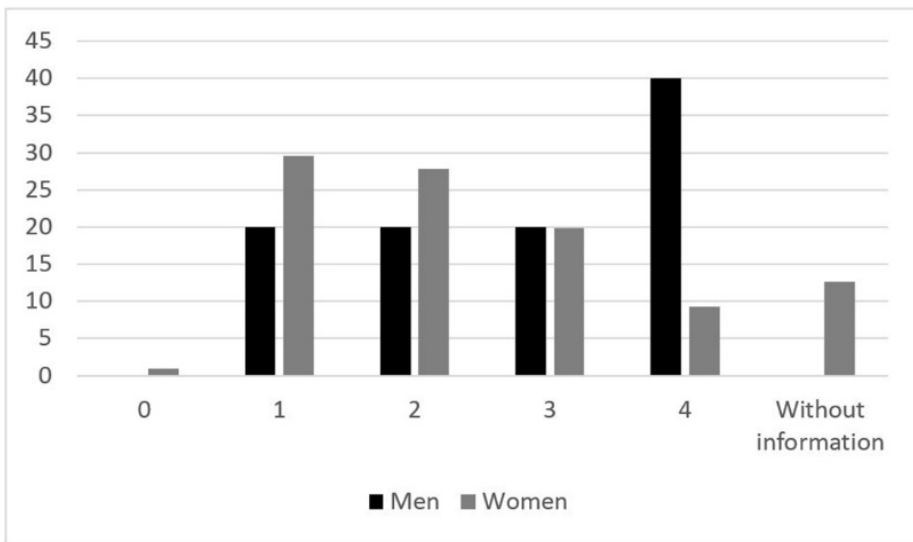Figure 1. Age at breast cancer diagnosis in men and women.

Figure 2. Clinical Stage of breast Cancer (at diagnosis) in man and women.

advanced stage (ARAÚJO *et al*., 2018).

The prevalence of breast cancer increases with age in both sexes, being considered rare before the age of 40 (ASSIS, BARRETO, e LIMA, 2019). With the targeting of preventive measures to the female sex, as mentioned previously, women present, in all consulted studies, a majority of diagnoses before the age of 60 (DANTAS *et al*., 2019; ASSIS, BARRETO, e LIMA, 2019; NUNES *et al*., 2020). Besides that, breast cancer detection generally occurs at lower clinical staging in women, which provides a better prognosis of the disease (ASSIS, BARRETO, e LIMA, 2019; NUNES *et al*., 2020).

Because it is a multifactorial disease, there are several risk factors involved with the development of neoplasms, such as family history of cancer and the consumption of alcohol and tobacco (BRASIL, 2019; JAMAL *et al*., 2014; DANTAS *et al*., 2019; DUGNO *et al*., 2014; ASSIS, BARRETO, e LIMA, 2019; XAVIER *et al*., 2019). Hereditary cancer predisposition directly influences the likelihood of developing the disease in several primary sites, including the breast (BRASIL, 2019; DANTAS *et al*., 2019; ASSIS, BARRETO, e LIMA, 2019; NUNES *et al*., 2020; XAVIER *et al*., 2019). The author Dugno *et al*. (2013), pointed out in his patients with breast cancer, a prevalence of 49.5% of individuals with a positive family history for neoplasia, non-specific for the breast, a percentage similar to the one found in this study. It is also worth mentioning that, when analyzed separately, women who have a family history of first-degree breast cancer have an increased risk of 13.3% to develop it in comparison to the general population (DUGNO *et al*., 2014).

Smoking and alcohol consumption, both alone and in association, are risk factors for cancer because they act in the process of genetic mutation, and may even increase the bioavailability of estrogen (XAVIER *et al*., 2019). The consumption of alcoholic beverages is widely addressed in the literature as a high risk factor for breast cancer, although it is found in lower percentages (ranging from 3.3 to 26.1%) by other authors (DUGNO *et al*., 2014; ASSIS, BARRETO, e LIMA, 2019; XAVIER *et al*., 2019). Smoking, on the other hand, is less directly related to this type of cancer, but it is still present in several studies in lower percentages compared to the data obtained here (ranging from 5.2 to 22%) (DUGNO *et al*., 2014; XAVIER *et al*., 2019).

CONCLUSION

The determination of the patient's profiles provides essential information so that it is possible to change the current scenario of breast cancer in the region of Caxias do Sul / RS, through the elaboration of public health policies and preventive programs aimed at the specific portion of the population. The study will also contribute to health planning and management, both at the hospital and at the regional level, by providing information that can help the establishment of breast cancer control strategies.

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