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Evaluation of Breast Cancer Risk in Brazilian Women Through the Use of an Online Assessment Tool

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ABSTRACT

Introduction: Breast cancer is the most commonly diagnosed type of cancer among women worldwide. The major breast cancer risk factors include age, lower age of menarche, late age of first pregnancy, fewer pregnancies, shorter or no periods of breastfeeding, and a later menopause.
Materials & Methods: The research was carried out in 2018, in Brazil, with 154 women aged above 18 years. The online instrument of data collection was adapted from "Cancer: Assessing Your Risk" developed by the American Cancer Society, translated and validated in Brazil.
Results: Study involved 155 women, aged over 18 years, most of whom are highly scholarity, graduate or postgraduate, but with varying socio-economic levels. The analysis of the questionnaires led to the following results: low risk for 133 women (86%), moderate risk for 17 volunteers (14%) and no high risk volunteers, according to the tool applied. However, as for women aged 50 years and over, all women had moderate risk scores.
Conclusion: In view of the results obtained, it is possible to conclude that the tool for assessing the risk of cancer applied showed that most volunteers have low risk for breast cancer. However, even at low risk at the moment, prevention, screening, and health education actions are important, not only for high risk women, and yes for all, considering the multifactorial aspect of this cancer and the changes that may occur with age and reproductive aspects to which all women will experience.

Key Words: Breast Cancer, Cancer Risk, Women

INTRODUCTION

Breast cancer is the most commonly diagnosed type of cancer among women worldwide and is an increasing public health problem. [1] Several advances have been made in the treatment of breast cancer, but the introduction of methods to predict women at elevated risk and prevent the disease has been less successful. [2]

It is observed a variability in the incidence according to the regions of the world, with rates varying from 27.0 / 100 thousand in Central Africa and East Asia to 92.0 / 100 thousand in North America. Due to the more favorable survival rates in the developed regions, the variability of mortality rates is lower, from 6.0 / 100,000 in East Asia to 20.0 / 100,000 in West Africa. [3]

Currently there are more women with major breast cancer risk factors, such us lower age of menarche, late age of first pregnancy, fewer pregnancies, shorter or no periods of breastfeeding, and a later menopause. Other risk factors which add to the burden of breast cancer are the increase in obesity, alcohol, sedentary lifestyle and hormone replacement therapy. [4]

The impact of hereditary breast cancer has also can be highlighted. For example, it is estimated that the penetrance of the breast cancer 2 (BRCA2) founder mutation in Iceland increased fourfold over the last century, and the cumulative incidence of sporadic breast cancer by age 70 also increased fourfold, from 2.5% to 11% of the population, over the same period. [5]

Menarche under the age of 12 years has been associated with increased risk for breast cancer. Studies have shown that the risk for breast cancer decreases by 9% each additional year for the age of menarche in cases of breast cancer diagnosed prior to menopause and 4% for cases diagnosed after menopause. This risk factor is associated with exposure to hormone-dependent and cell proliferation of breast tissue precocious. [6]

The nulliparity is also considered a risk factor for the development of breast cancer, as well as, gestation after 30 years of age. Women who have at least one pregnancy have a 25% lower risk of developing disease when compared to nulliparous women. This protection increases as the number of pregnancies, reaching 50% protection in women who had five or more children. [7]

Alcohol can increase total levels and estrogen bioavailability. The relationship between alcohol consumption and breast cancer is linked to the daily intake. The higher the dose, the greater the risk of developing breast cancer, ie there is a dose-response effect. Every 10 grams plus ingested per day, there is a 7.1% increase in the risk of developing breast cancer. The reason for the increased risk of breast cancer with alcohol consumption is unclear, probably due to increased levels of estrogen in alcohol users. [8]

Considerable experimental evidence supports the potential role of dietary habits and lifestyle in cancer etiology and cancer prevention. Dietary pattern, which correlates with obesity, can be an important cause of cancer, and lack of physical activity can also contribute to postmenopausal. An association was found between protein intake and breast cancer risk, as the high intake of red meat, fresh and processed, increases the risk of breast cancer. [9, 10]

High weight is one of the factors that leads to increased risk of breast cancer in postmenopausal women. An analysis of cohort studies suggests that, in postmenopausal women, lower waist circumference reduces the risk of breast cancer compared to larger circumferences and that there is a 24% lower risk in women with a lower waist and hip ratio. However the impact of obesity and breast cancer was observed in white women but not in post-menopausal African-American women. Measurements of waist, hip and the proportion of both were significantly associated with a 1.95 to 2.75 times greater risk for the development of breast cancer estrogen receptor negative. [11]

Mothers should be encouraged to breastfeed their babies because the complex components of human milk secretion make it an ideal food source for babies and clinical evidence has shown that there is a lower risk of breast cancer in women who breastfed their babies. [12]

Especially in cases of diabetes there are indications that the milk component production in diabetic mothers is affected by changes in glucose metabolism, therefore, adequate maternal glycemic control and an adequate duration of breastfeeding for diabetic mothers are crucial to ensure that the immunity components are able to confer protection against breast cancer. [13]

The etiology of cancer is multicausal, that is, it results from the interaction of several factors, which, to a greater or lesser extent, increase the likelihood of a individual to have the disease, these are the risk factors related to cancer. On the other hand, some factors give the organism a lower probability of cancer, are called protection factors. It is worth mentioning the possibility of interfering in the risk of the individual will be the risks by means of behavioral change. Cancer researchers, clinicians, and the public are increasingly interested in models and tools designed to predict the occurrence of cancer. As the number of cancer risk prediction models have grown, so too has interest in ensuring that they are appropriately applied, correctly developed, and rigorously evaluated. [14]

This study evaluated the risk of breast cancer in Brazilian women by means

of the adaptation of "Cancer: Assessing their risk" questionnaires, ajusted for aim this Research. This tool was translated and validated for Brazilian culture in 2008 by Tonani and Carvalho. [15]

MATERIALS & METHODS

The research was carried out in 2018, in Brazil, with 154 women aged above 18 years and over through a collection of data by online form (Google Docs Forms), with suitability of free and informed consent form for the online format. The search for practical methods and tools to collect reliable information is constant in the area of heath and epidemiology. The advancement of technologies and media has been an important contribution; the Internet in recent times has also become a data collection tool. [16]

The results obtained by the instrument of data collection, previously mentioned, were analyzed by scoring and analyzed by descriptive statistics. There is a score for each chosen alternative that should be considered for the outcome of each volunteer. Scores below 100 indicate low risk, between 100 and 199 the risk is moderate and 200 or more indicates high risk. [15]

RESULTS AND DISCUSSION

Throughout its 80 years of existence, the National Cancer Institute José Alencar Gomes da Silva (INCA), linked to the Ministry of Health of Brazil, is part of the history of oncology and public health in Brazil, acting in the formulation of the national policy of prevention and control of cancer. For Brazil, 59,700 new cases of breast cancer are estimated for each year of the 2018-2019 bienniums, with an estimated risk of 56.33 cases per 100,000 women. [17]

According to National Cancer Institute the estimate the probability of developing cancer over a defined period of time will help clinicians identify individuals at higher risk of specific cancers, allowing for earlier or more frequent screening and counseling of behavioral changes to decrease risk. These types of models also will be useful for designing future chemoprevention and screening intervention trials in individuals at high risk of specific cancers in the general population. [18]

Epidemiologic research have led to the identification of a number of lifestyle and environmental breast cancer risk factors, including menstrual and/or reproductive history, use of hormones, anthropometry, and alcohol consumption, each typically explaining amodest proportion of the variation in disease risk. However, when combined, the known risk factors could have a substantial effect on breast cancer risk. [19]

The present study involved 155 women, aged over 18 years, most of whom are highly scholarity, graduate or postgraduate, but with varying socio-economic levels. The analysis of the questionnaires led to the following results for risk of breast cancer: low risk for 133 women (86%), moderate risk for 17 volunteers (14%) and no high risk volunteers, according to the tool applied. However, as for women aged 50 years and over, all women had moderate risk scores (Figure 1).

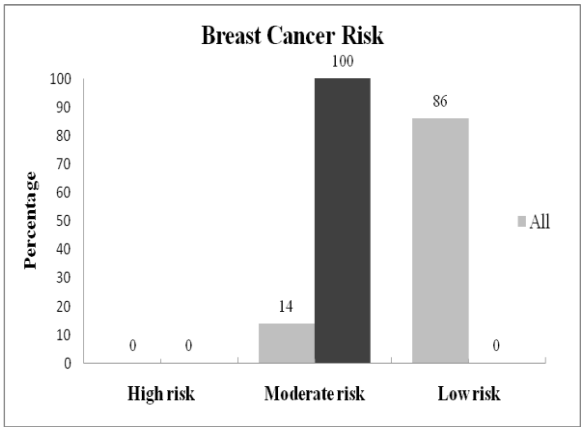

Figure-1. Percentage distribution of volunteers according to risk for breast cancer.

The indices were similar to another study also performed in Brazil, 14.4% of the subjects presented moderate risk and 66.7 with low risk. [15]

The most prevalent age group in the study was below 35 years, of which 99 women (64.3%), which may justify the high percentage rate of low risk for breast cancer, since age is a major factor for this cancer.

Not only the age of the woman itself, but also the age of pregnancy is also important. The older a woman is when she has her first full-term pregnancy, the higher her risk of breast cancer. Women who are older than 30 when they give birth to their first child have a higher risk of breast cancer than women who have never given birth. [20]

In this study, only 15 (9.7%) of the women had first pregnancy at 30 years or older, another factor that should be emphasized as to the low risk of the majority of the sample.

Screening for breast cancer aims to reduce mortality from this cancer and morbidity associated with advanced stages of the disease, through early detection in asymptomatic women. The key to achieving the greatest potential effects from this screening is providing early access to effective diagnostic and treatment services. [21]

According to the table 1, the majority of the sample (102 - 66.2%) do not self-exam the breasts regularly and only about than half (73-47,46%) have negative test results in mammography or clinical examination.

Table 1. Distribution of the volunteers for self-examination and negatives mammogram or physical examination

Practice breast self-examination monthly	Yes	52 (33,8%)
	No	102 (66,2%)
Negative mammogram or physical examination	Yes	73 (47,4%)
	No	81 (52,6%)

Mammographic screening has been implemented to a great extent in high-income countries and regions. Most countries in Latin America have national recommendations or guidelines, including those calling for mammographic screening combined with clinical breast examination and breast self-examination. In other low- and middle-income countries, breast cancer screening is promoted primarily by periodic campaigns. [22]

In Brazil, as reviewed in the Guidelines for the Early Detection of Breast Cancer, published in 2015, mammography is the recommended method. Mammography is the only exam whose application in screening programs has proven effectiveness in reducing breast cancer mortality. Routine mammography is recommended for women aged 50-69 every two years. In order to control breast cancer, the importance of intersectoral actions that increase access to information and preventive practices, such as maintaining body weight and regular physical activity, should be highlighted. Reduce access barriers to health services for early detection is a strategic component. [23]

CONCLUSION

In view of the results obtained, it is possible to conclude that the tool for assessing the risk of cancer applied showed that most volunteers have low risk for breast cancer. However, even at low risk at the moment, prevention, screening, and health education actions are important, not only for high risk women, and yes for all, considering the multifactorial aspect of this cancer and the changes that may occur with age and reproductive aspects to which all women will experience.

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