ejpmr, 2019,6(3), 57-60

SJIF Impact Factor 4.897

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

THE OVERVIEW OF BREAST CANCER STATISTICS AT CATANDUVA-SP IN BRAZIL: INCIDENCE, MORTALITY, SURVIVAL AND SCREENING

Michelle Rabello Tacconi*, Marília de Jesus Nogueira, Letícia Menegossi, Gabriela Salles Figueiredo, Fabiola Silva Garcia Praça and Wanessa Silva Garcia Medina

Brazil.

***Corresponding Author: Michelle Rabello Tacconi**

Brazil.

Article Received on 31/12/2018 **Article Revised on 20/01/2019** **Article Accepted on 11/02/2019**

ABSTRACT

According to data in the statistics of the National Cancer Institute José Alencar Gomes da Silva (INCA) and the Ministry of Health (MS) estimates the occurrence of about 600 thousand new cases of cancer in Brazil in 2018. The precise number of the estimate is of 582.590 new cases of cancer being 282.450 in women and 300.140 in men of which female breast cancer reaches the number 59.700 new cases for biennium 2018-2019. In this article, we provide an overview of breast cancer statistics at Catanduva-SP in Brazil, including data on incidence, mortality, survival, and screening. Data from the years 2010 to 2015 of patients undergoing clinical therapy at Hospitals Padre Albino and Emilio Carlos, in Catanduva-SP, Brazil were analysed based on breast cancer incidence, demographic data, administered drug agents, medical history, clinical history, mortality and survival rates. The results were compared with those described by the INCA and data obtained in the scientific literature. In our studies, we showed that 25% of the cancer case treated during 2010-2015 at Catanduva-SP, were diagnosed as breast cancer and almost 99% were female, racially identified as caucasian and African (85 and 15%, respectively). The average age was 55 years old and 33.6% of these women had received mastectomy while 03 patients did not have a surgical intervention as part of breast cancer treatment. In addition, chemotherapy was used after surgery only in 6% of the patients. Finally, death number observed for breast cancer was 4.5%. Since 1990, breast cancer death rates have dropped by 34% and this decrease was evident in all racial/ethnic groups. Nevertheless, survival disparities persist by race/ethnicity, with which African American women having the poorest breast cancer survival when compared to any racial/ethnic group. Sustained and increased efforts to provide high-quality screening, diagnosis, and treatment to all segments of the population are needed to achieve continued progress in the breast cancer control.

KEYWORDS: breast cancer, race/ethnicity, chemotherapy.

INTRODUCTION

Breast cancer is the most common cancer diagnosed among women in Brazil, after non-melanoma skin cancer, accounting for nearly 29.5% cancers. It is also the second leading cause of cancer death among women after lung cancer, where there are estimated 57.120 new cases annually[1] and 51.29 cases per 100.000 women will developed breast cancer in her lifetime.[2] In this article, we describe trends in breast cancer incidence, mortality, and survival rates by race/ethnicity inner city (Catanduva-SP) in Brazil. Further, we examine recent incidence trends by diagnosis age.

Currently, Brazil has a population of about 200 million people, with a variety of ethnicities distributed in a wide territory divided into five geographic regions. For instance, in 2010, the Brazilian population was composed of 48% Caucasians, 44% multiracial, and 7% African descent.[2] All Brazilian population are supported by healthcare system organized as two types: publicly funded healthcare system, called Sistema Único de Saúde (SUS), or private healthcare system, supported individually by the population. It is estimated that about 75% of the population are currently users of the public health system.

Mammography screening can reduce mortality from breast cancer since it is able to detect the cancer before, they are diagnosed symptomatically. This lead time can potentially result in a better survival.[3,4,5] but also increases the risk of overdiagnosis, i.e. the detection of lesions that would otherwise not become symptomatic in an individual's lifetime.

When women make decisions on screening participation, overdiagnosis is one important parameter to consider, because the clinical management of all diagnosed cases of breast cancer typically involves invasive treatment, which might cause financial difficulties[6] and reduce the patient's quality of life.[7]

The frequency of overdiagnosis has been estimated in various ways so earlier detection leads to excess incidence during the screening years.[8] Thus, long-term data are imperative to provide a reliable estimate of overdiagnosis.[8,9,10] De Gelder et al., (2011) showed that estimates comparing the number of overdiagnosed cases to the number of all cases limited to women aged 50–69 years could be almost twice as high as estimates when comparing to the number of cases in all women older than 50 years, i.e. continuing follow-up after screening ends (due to a higher denominator).[11]

In present-day, estimates of overdiagnosis from observational studies have varied substantially describing groups of estimates: one with >30% (mean: 44%, one study 20%), and other with <10% overdiagnosis[8,14,15,16,17,18] and these varied estimates may be due to the fact that the studies differed both in their populations and in study designs. To overcome this limitation Etzioni and Gulati suggested a "check" of the data using multiple study designs about the same data18.

Recently, Njor and colleagues, 2018, demonstrated in their studies, both low and high estimates of overdiagnosis could be suggested by the same data, and the estimates depend on the study design. This prioritises the need for a careful scrutiny of the validity of the assumptions underpinning the estimates before reporting multiple estimates. The age-period analyses of breast cancer overdiagnosis suggesting very high frequencies of overdiagnosis rested on unmet assumptions.[8]

MATERIALS AND METHODS

Data Sources

A retrospective cohort study was conducted using data from the years 2010 to 2015 of patients undergoing clinical therapy at Hospitals Padre Albino and Emilio Carlos, in Catanduva-SP, Brazil. The data were analysed based on breast cancer incidence, demographic data, administered drug agents, medical history, clinical history, mortality and survival rates. The results were compared with those described by the INCA and data obtained in the scientific literature.

Statistical Analysis

Descriptive statistics were employed to characterize subjects' baseline data. In order to facilitate the use of the prediction rule in the clinical setting, continuous values were categorized into groups. Following the methodology of previous studies, laboratory test results and continuous values were dichotomized based on average values.[21] Continuous variables were expressed as mean ± standard deviation (SD). Categorical variables were expressed by percentages. The Student's t-test was used to compare quantitative variables. The values $p < 0.05$ were considered statistically significant. Statistical analysis was performed using the GraphPad prism 5 Software for Windows. Ethical approval was obtained from the Research Ethics Committee of Faculdades Integradas Padre Albino, Catanduva-SP, Brazil (n°: 2.658.271).

RESULTS AND DISCUSSION

In our studies, we observed that 199 of 795 cases had a confirmed diagnosis of breast cancer during 2010 to2015. All subjects were racially identified as Caucasian and African American with average age of 55 years, of which 99% were female. According to the INCA (National Cancer Institute)[20], the incidence for females and males in our work were not significantly different ($p \geq 0.05$) from that expected (males, 1%). In our study, the 99% females with breast cancer had received mastectomy and/or lumpectomy, lower than 2% did not have a surgical intervention as part of breast cancer treatment while 4.5% of patients had died (Figure 1).

Curiously, it is known that the incidence of breast cancer in South American countries is half the incidence of European countries (about 44 cases per 100.000 women in Latina America versus 84 cases per 100.000 women in Northern Europe).[21] In agreement to these results, our results of racially identified were 85% Caucasian, 15% African American women.

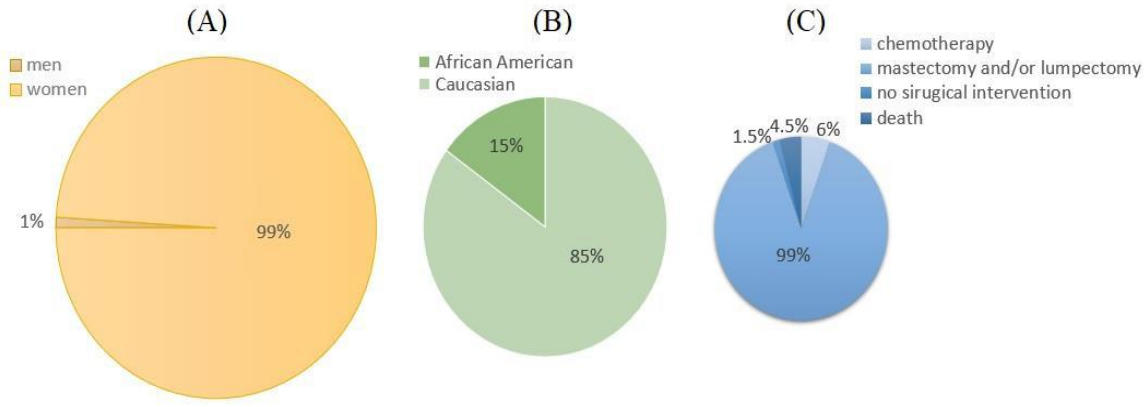

Figure 1: Data from the years 2010 to 2015 of patients undergoing breast cancer clinical therapy at Hospitals Padre Albino and Emilio Carlos, in Catanduva-SP, Brazil by sex distribution (A), race/ethnicity (B) and treatment (C). Data are shown in percentages (%).

We detected also that an overall breast cancer incidence rates are converging among Caucasian and African American women (90%) and it happened because of increases in African American women incidence coupled with stable incidence rates in caucasian. Indeed, the decreases in estrogen receptor- breast cancers may have contributed to the declines in breast cancer mortality rates because these cancers often have a poorer prognosis than estrogen receptor[22] breast cancer.

Carol DeSantis and colleagues (2013), showed that consistent follow-up of abnormal results, prompt diagnosis, and the delivery of high-quality treatment is critical to further improve breast cancer outcomes. It is also important that patients at high risk of breast cancer are identified and offered appropriate screening and follow-up.[23] Data from the 2010 National Health Interview Survey suggest that the use of breast cancer chemoprevention drugs remains low (well under 1%), showing a slow increase since 2000 and a slight shift toward raloxifene since its approval in 2007.[24] Clinicians are advised to discuss the use of tamoxifen and raloxifene for chemoprevention with women at an increased risk of breast cancer.[25,26,27] Sustained and increased efforts to provide high-quality screening, diagnosis, and treatment to all segments of the population are needed to achieve continued progress in the breast cancer control.

Some important risk factors for breast cancer, e.g. breast density or overweight, have become more prevalent in recent years[28], in parallel with screening becoming more widespread. As a treatment, the chemotherapy may be given before surgery to remove the tumor. When given before surgery, chemotherapy will shrink the tumor and reduce the amount of tissue that needs to be removed during surgery. Treatment is given before surgery is called preoperative therapy or neoadjuvant therapy. After the doctor removes all cancer that can be seen at the time of the surgery, some patients may be given radiation therapy, chemotherapy, targeted therapy, or hormone therapy after surgery, to kill any existing cancer cells.

On the other hand, treatment given after the surgery, in order to reduce the risk of cancer recurrence, is called postoperative therapy or adjuvant therapy. In our results, we observed that the chemotherapy was used after surgery only in 12 patients. Finally, among the patients that did the mastectomy (33,6%) the breast reconstruction (surgery to rebuild a breast's shape after a mastectomy) was considered. Breast reconstruction was done at the time of the mastectomy or at some time after considering that reconstructed breast may be made with the patient's own tissue or by using implants filled with saline or silicone gel.

CONCLUSION

Breast cancer is a global health concern and constitutes the most expensive malignancy to treat. Furthermore, this is one of primary cause of death among women worldwide. In the last years the clinical decision, as well as coverage of new breast cancer treatments, are being made based on cost-effectiveness, considering then the costs of each treatment proposed and its efficacy. In our studies, we showed that 25% of the cancer case treated during 2010-2015 at Catanduva, were diagnosed as breast cancer and almost 99% were female, racially identified as caucasian and African (85 and 15%, respectively). The average age was 55 years old and 33.6% of these women had received mastectomy while 03 patients did not have a surgical intervention as part of breast cancer treatment. In addition, chemotherapy was used after surgery only in 12 patients. Finally, death number observed for breast cancer was 4.5%.

ACKNOWLEDGEMENT

This work was supported by UNIFIPA (Centro Universitario Padre Albino).

REFERENCES

1. Diniz CSG, Pellini ACG, Ribeiro AG, et al. Breast cancer mortality and associated factors in São Paulo State, Brazil: an ecological analysis. BMJ Open, 2017; 7: e016395. doi:10.1136/ bmjopen-2017-016395
2. BRASIL. Ministério da Saúde. Departamento de Informática do SUS. Sistema de informações sobre mortalidade. Brasília, DF, 2017. Disponível em: <http://www.datasus. gov.br>. Acesso em: 13 set. 2017.
3. Instituto Brasileiro de Geografia e Estatística (IBGE). Escassez e Fartura: Distribuição da Oferta de Equipamentos de Diagnóstico por Imagem no Brasil [Scarcity and abundance: distribution of supply diagnostic imaging equipment in Brazil]. Rio de Janeiro: IBGE; 2009 [cited February 14, 2013]. Available from: http://www.ibge.gov.br/home/estatistica/populacao/indic_sociosaude/2009/com_esca.pdf. Accessed August 2, 2014. Portuguese.
4. Independent U. K. Panel on Breast Cancer Screening. The benefits and harms of breast cancer screening: an independent review. Lancet, 2012; 380: 1778–86.
5. Marmot MG, Altman DG, Cameron DA et al. The benefits and harms of breast cancer screening: an independent review. Br J Cancer, 2013; 108: 2205–40.
6. Njor S, Nystrom L, Moss S et al. Breast cancer mortality in mammographic screening in Europe: a review of incidence-based mortality studies. J Med Screen, 2012; 19(1): 33–41.
7. National Cancer Institute. Financial Toxicity Associated with Cancer Care - Background and Prevalence. URL: https://www.cancer.gov/about-cancer/managingcare/track-care-costs/financial-toxicity-hp-pdq. Accessed, August 11, 2017.
8. Sisse Helle Njor, Eugenio Paci, Matejka Rebolj. As you like it: How the same data can support manifold views of overdiagnosis in breast cancer screening.

Int J Cancer, Sep 15, 2018; 143(6): 1287-1294. doi: 10.1002/ijc.31420. Epub 2018 Apr 25Etzioni R, Gulati R. Recognizing the Limitations of Cancer Overdiagnosis Studies: A First Step Towards Overcoming Them. JNCI, 2016; 108: djv345.
9. Boer R, Warmerdam P, de Koning H et al. Extra incidence caused by mammographic screening. Lancet, 1994; 343: 979.
10. Duffy SW, Parmar D. Overdiagnosis in breast cancer screening: the importance of length of observation period and lead time. Breast Cancer Res., 2013; 15: R41.
11. De Gelder R, Heijnsdijk EA, van Ravesteyn NT et al. Interpreting overdiagnosis estimates in population-based mammography screening. Epidemiol Rev., 2011; 33: 111–21.
12. Independent U. K. Panel on Breast Cancer Screening. The benefits and harms of breast cancer screening: an independent review. Lancet, 2012; 380: 1778–86.
13. Marmot MG, Altman DG, Cameron DA et al. The benefits and harms of breast cancer screening: an independent review. Br J Cancer, 2013; 108: 2205–40.
14. Puliti D, Duffy SW, Miccinesi G et al. Overdiagnosis in mammographic screening for breast cancer in Europe: a literature review. J Med Screen, 2012; 19(1): 42–56.
15. Myers ER, Moorman P, Gierisch JM et al. Benefits and Harms of Breast Cancer Screening: A Systematic Review. JAMA, 2015; 314: 1615–34.
16. Nelson HD, Cantor A, Humphrey L et al. Screening for Breast Cancer: A Systematic Review to Update the 2009 U.S. Preventive Services Task Force Recommendation. Evidence Synthesis No. 124. AHRQ Publication No. 14-05201-EF-1. Rockville, MD: Agency for Healthcare Research and Quality, 2016.
17. IARC. Breast Cancer Screening. IARC Handbooks of Cancer Prevention, 2016; 15. Lyon: IARC.
18. Etzioni R, Gulati R. Recognizing the Limitations of Cancer Overdiagnosis Studies: A First Step Towards Overcoming Them. JNCI, 2016; 108: djv345.
19. Sisse Helle Njor, Eugenio Paci, Matejka Rebolj. As you like it: How the same data can support manifold views of overdiagnosis in breast cancer screening. Int J Cancer. Sep 15, 2018; 143(6): 1287-1294. doi: 10.1002/ijc.31420. Epub 2018 Apr 25.
20. INCA. Instituto Nacional do Cancer. Ministério da Educação. https://www.inca.gov.br
21. Cecilio AP, Takakura ET, Jumes JJ, Wilhelm dos Santos J, Herrera AC, Victorino VJ, Panis C. Breast Cancer in Brazil: epidemiology and treatment challenges. Breast Cancer: Targets and Therapy, 2015; 7: 43—49.
22. Surveillance, Epidemiology, and End Results (SEER) Program. SEER*Stat Database: Incidence-SEER 9 Regs Research Data, Nov. 2012 Sub (1973-2010) <Katrina/Rita Population Adjustment>Linked To County Attributes-Total US, 1969-2011 Counties. Bethesda, MD: National Cancer Institute, Division of Cancer Control and Population Sciences, Surveillance Research Program, Surveillance Systems Branch; 2013. Released April 2013 based on the November 2012 submission.
23. DeSantis C, Ma J, Bryan L, Jemal A. Breast cancer statistics, 2013. CA Cancer J Clin, Jan-Feb, 2014; 64(1): 52-62. doi: 10.3322/caac.21203. Epub 2013 Oct 1
24. Waters EA, McNeel TS, Stevens WM, Freedman AN. Use of tamoxifen and raloxifene for breast cancer chemoprevention in 2010. Breast Cancer Res Treat., 2012; 134: 875-880
25. Nelson HD, Smith ME, Griffin JC, Fu R. Use of medications to reduce risk for primary breast cancer: a systematic review for the U.S. Preventive Services Task Force. Ann Intern Med., 2013; 158: 604-614.
26. Bevers TB, Armstrong DK, Arun B, et al. Breast cancer risk reduction. J Natl Compr Canc Netw, 2010; 8: 1112-1146.
27. Visvanathan K, Hurley P, Bantug E, et al. Use of pharmacologic interventions for breast cancer risk reduction: American Society of Clinical Oncology clinical practice guideline. J Clin Oncol, 2013; 31: 2942-2962.
28. Hellmann SS, Lynge E, Schwartz W et al. Mammographic density in birth cohorts of Danish women: a longitudinal study. BMC Cancer 2013; 13: 409. ; OECD. Obesity Update 2014.