Risk Factors Associated with Breast Cancer

Víctor Manuel Vargas-Hernández[1,*]

[1]Gynecology Service, Hospital Juárez de México; Mexican Academy of Surgery

Abstract

In Mexico, breast cancer is the second most common site of cancer in women and in most developed and emerging countries. Incidence rates have increased in many countries, although in some, mortality has remained stable with a slight reduction. There are geographical differences with high rates of breast cancer in North America, Northern Europe and Oceania, and lower rates in Central and South America, South and East Europe; in addition to emerging countries in Africa and Asia. Genetic and hereditary factors constitute less than 5% of breast cancer cases and other risk factors for breast cancer are related to the reproductive life of the woman. This work was carried out in order to determine if the risk factors considered classic are really associated with breast cancer in our sample of Mexican women studied.

Introduction

In Mexico, breast cancer is the second most common site of cancer in women and in most developed and emerging countries [1]. Incidence rates have increased in many countries, although in some, mortality has remained stable with a slight reduction [2] There are geographical differences with high rates of breast cancer in North America, Northern Europe and Oceania, and lower rates in Central and South America, South and East Europe; in addition to emerging countries in Africa and Asia [3]. Genetic and hereditary factors constitute less than 5% of breast cancer cases and other risk factors for breast cancer are related to the reproductive life of the woman [4]. This work was carried out in order to determine if the risk factors considered classic are really associated with breast cancer in our sample of Mexican women studied.

Material and Methods

A retrospective, observational and descriptive study was carried out in 162 women with breast cancer over (2002-2004) in the Oncology Gynecology Service of the Hospital Juárez de México to determine whether reproductive risk factors are factors that are in these patients related to breast cancer. Patients with a complete medical record and a diagnosis of breast cancer were included. The variables studied were: age at the time of breast cancer diagnosis, age at menarche, duration of breastfeeding, number of pregnancies, age of first delivery, history of the use of menopausal hormone therapy; other variables were body mass index, diabetes mellitus, arterial hypertension, alcoholism, and a family history of breast cancer.

Statistical Analysis

A statistical analysis was carried out using the SPSS statistical package, after data capture of the variables studied in the Microsoft Excel program for Windows 2003. It is a clinical investigation of a descriptive analysis that included location and dispersion measures, as well as graphic analysis using bar charts.

Results

The sample size was 200 patients, of which 38 were excluded due to not having inclusion criteria and only 162 patients were studied. The age range at the time of breast cancer diagnosis was 27 to 78 years (mean 47.60, standard deviation 13.09); (Figure 1) early menarche occurred only in 12.3% (n = 20) of patients; 64.4% (n = 104) presented menarche between 12 and 13 years of age. The mean age at the time of breast cancer diagnosis for the early menarche group was 55 years and for the general group it was 47.6 years. The mean age of the first pregnancy was 22 years and the age of menopause was 51 years; 54% of the patients had 3 pregnancies; 72.2% were breastfed (n = 117) and 45.1% were for more than 6 months (n = 73); menstrual disorders occurred in 22.8% of cases (n = 37), oligomenorrhea predominating in 43.3% of cases (n = 16); Hormone therapy for menopause was previously used in 19.8% (n = 32). Hereditary-family history of breast cancer occurred in 14.2% (n = 23) and smoking in 11.1% (n = 18). It was correlated that nulliparous patients, with alcoholism and absence of breastfeeding, breast cancer occurred in those under 45 years of age and only the risk factor that was related to breast cancer was overweight and obesity with 54.26 and 17.11% respectively (mean 28.00, standard deviation 3.032). (Figure 2).

Discussion

There are risk factors considered important that are associated with breast cancer; including risk reduction surgery [5]. The documented risk factors are different according to the population studied; mainly the age of presentation, where the incidence of breast cancer before 30 years of age is low [6].The patients in our study the average age was (43 years) at the diagnosis of breast cancer lower than that reported in the literature (1.7).

Other reports of women with menarche before the age of 12, increased the relative risk of 1.3 of invasive breast cancer compared, with those, if they started it after 15 years, and in the present study early menarche only appeared in 12.3 % of cases were not observed to be associated with early detection of breast cancer. [8]

A higher risk is also reported in nulliparous women or those who had their first childbirth after the age of 30, in the present study this relationship was not observed either and nulliparity was only present in 15.4% and women who had a child after 30 years was 2.37% [9]. The absence of breastfeeding was also considered a risk factor; [10] in our study, 72.2% lactated and did not show a relationship, only the
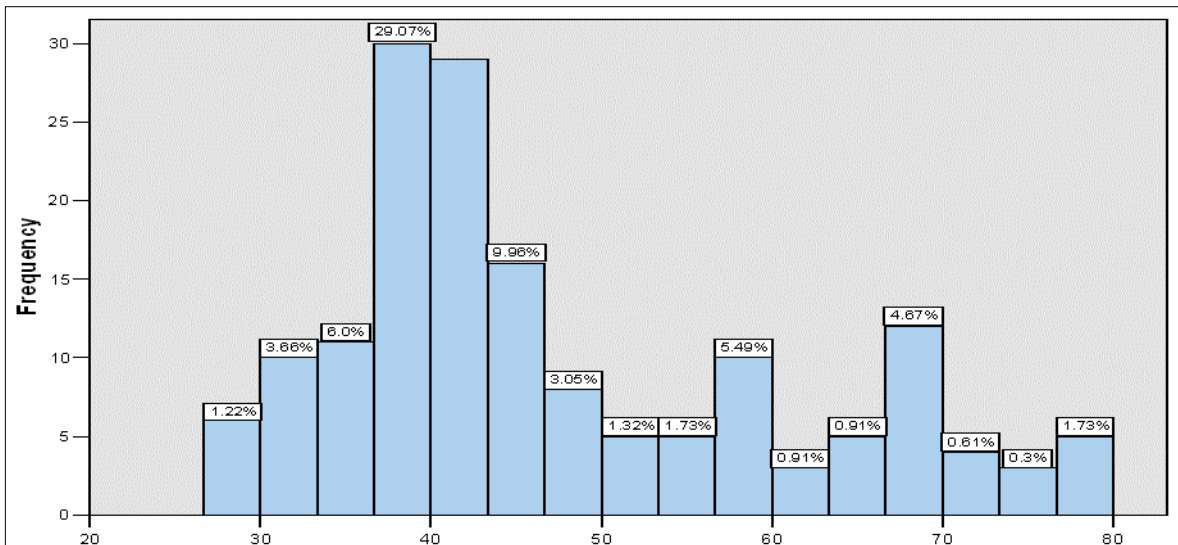
Figure 1. The age range at the time of breast cancer diagnosis was 27 to 78 years (mean 47.60, standard deviation 13.09).
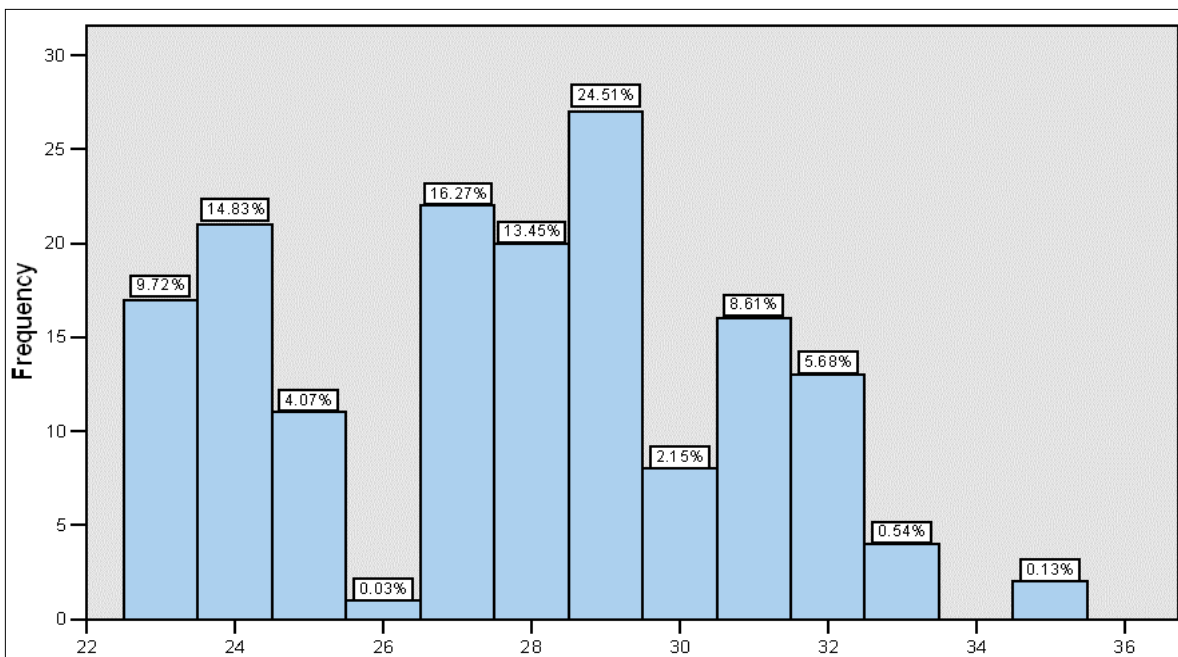

Figure 2. Overweight was presented in 54.26% and Obesity in 17.11. The average body mass index was 28 m² of body surface; with a mode of 29 m² of body surface.

absence of breastfeeding was related to the appearance of breast cancer at an earlier age (less than 42 years), in the same study a significant relationship was reported with the use of oral contraception, while in this sample only 25.3% had this antecedent, an increase in the incidence of breast cancer was also reported with the use of menopausal hormone therapy, without being observed in the sample that was studied, only 19.8% had this antecedent and 3.7% used it for more than 5 years. (eleven)

A relationship between alcohol consumption and smoking with an increase in breast cancer is reported, which was also not observed in this study, only patients with alcohol consumption had breast cancer at an earlier age. [12]. It is observed that a high body mass index is a lower risk factor, unlike the sample studied, a greater correlation with breast cancer was found with a BMI greater than 25m²sc [13], a risk of 1.8 is also reported for women with a history of family cancer while this study was found to occur in 14.2% of cases. [14]. The results obtained from this study surprise us that of all the usual risk factors reported, they do not seem to have a correlation in our sample; only a strong correlation exists between overweight, obesity, and breast cancer, which needs to be confirmed with randomized control groups; This highlights the importance of having our own epidemiology in Mexican women; Current and future studies are based on molecular biology in relation to the genes involved in the breast cancer process [15] as part of a strategy in the evaluation of a definitive risk of breast cancer. [16].

Conclusions

Through our observation in the current study, we have concluded that there is no correlation between the usual risk factors associated with breast cancer; only overweight and obesity are related. Further research is required in other different countries and to study other risk factors involved in the genesis of breast cancer such as inflammatory factors, insulin-like growth factors, and hyperinsulinism [17].

References

1. Ries LAG, Eisner MP, Kosary CL, et al. (eds). SEER Cancer Statistics Review, 1973–1997, National Cancer Institute. NIH Pub. No. 00–2789. Bethesda, MD, 2000.

2. Vogel VG. Breast cancer risk factors and preventive approaches to breast cancer. In: Kavanagh JJ, Singletary SE, Einhorn N, et al. (eds). Cancer in women. Malden, MA: Blackwell Science, 1998: 58–91.

3. Prout MN. Breast cancer risk reduction: what do we know and where should we go? Medscape Women's Health eJournal 2000; 5: 1–9.

4. Pharoah PDP, Day NE, Duffy S, et al. Family history and the risk of breast cancer: a systematic review and meta-analysis. Int J Cancer. 1997; 71: 800–809.

5. Stybo TM, Wood WD. The management of ductal and lobular breast cancer. Surg Oncol. 1999; 8: 67–75.

6. Andrew McGuire, James A. L. Brown, Carmel Malone, Ray McLaughlin, Michael J. Kerin. Effects of Age on the Detection and Management of Breast Cancer. Cancers (Basel). 2015 Jun; 7(2): 908–929. doi: 10.3390/cancers7020815

7. Steinberg KK, Thacker SB, Smith SJ, et al. A meta-analysis of the effect of estrogen replacement therapy on the risk of breast cancer. JAMA. 1991; 265: 1985–1990.

8. Brinton LA, Schaiere C, Hoover RN, et al. Menstrual factors and risk of breast cancer. Cancer Invest. 1988; 6: 145–154.

9. Guo F, Kuo YF, Shih YCT, Giordano SH, Berenson AB. Trends in breast cancer mortality by stage at diagnosis among young women in the United States. Cancer. 2018;124(17):3500-3509. doi:10.1002/cncr.31638

10. Paredes A. Factores de riesgo en cáncer de mamario. Ginecología y Obstetricia de México. 1991;59:49-45.

11. Collaborative Group on Hormonal Factors in Breast Cancer. Breast cancer and hormone replacement therapy: collaborative reanalysis of data from 51 epidemiological studies of 52,705 women with breast cancer and 108,411 women without breast cancer. Lancet. 1997; 350: 1047–1059.

12. Harvey EB, Schairer C, Brinton LA, et al. Alcohol consumption and breast cancer. J Natl Cancer Inst. 1987; 78: 657–661.

13. Thomas E. Rohan, Moonseong Heo, Lydia Choi,

Mridul Datta, Jo L. Freudenheim, Victor Kamensky, Heather M. Ochs-Balcom, Lihong Qi, Cynthia A. Thomson, Mara Z. Vitolins, Sylvia Wassertheil-Smoller, Geoffrey C. Kabat. Body Fat and Breast Cancer Risk in Postmenopausal Women: A Longitudinal StudyJ Cancer Epidemiol. 2013; 2013: 754815. doi: 10.1155/2013/754815

14. Brentnall AR, van Veen EM, Harkness EF, et al. Una evaluación de control de casos de 143 polimorfismos de nucleótidos individuales para la estratificación del riesgo de cáncer de mama con factores clásicos y densidad mamográfica. *Int J Cáncer*. 2020;146 (8):2122-2129. doi:10.1002/ijc.32541

15. Lilian Jara, Sebastian Morales, Tomas de Mayo, Patricio Gonzalez-Hormazabal, Valentina Carrasco,Raul Godoy. Mutations in BRCA1, BRCA2 and other breast and ovarian cancer susceptibility genes in Central and South American populations. Biol Res. 2017; 50: 35. doi: 10.1186/s40659-017-0139-2

16. Víctor Manuel Vargas-Hernández, Víctor Manuel Vargas-Aguilar, Mario Adan Moreno-Eutimio, Gustavo Acosta Altamirano, JM Tovar-Rodriguez. Metabolic syndrome in breast cancer Gland Surgery 2013;2(2):80-90