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Research Article

FAMILY HISTORY OF BREAST CANCER IN PATIENTS OF THE MOHAMMED VI CENTER FOR CANCERS TREATMENT IN CASABLANCA IN 2014

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ABSTRACT

Background: Breast cancer is the most common cancer in women and is the leading cause of cancer death. Breast cancers are predominantly sporadic, but family aggregation has been found in about 20% of cases. The objective of this work is to estimate the prevalence of familial breast cancer and to describe the epidemiological, clinical and prognostic characteristics of patients with a family history of breast cancer, treated at the Mohammed VI center for cancers treatment, CHU IbnRochd Casablanca.

Patients and methods: A cross-sectional study carried out within the Mohammed VI Center during the year 2014. The data were collected from patients' medical records and analysed by the Epi Info software.

Results: 13.6% (89/655) of the cases had a family history of breast cancer, 46.1% of cases of the first degree, 24.7% of the second degree and 29.2% of the third degree. The mean age at diagnosis was 46.8 ± 10.1 years. The stage at diagnosis was in most cases early (66.3%) and late in 33.7% of cases. Tumour size was in 39.3% of cases T1, 36.0% T2, 12.4% T3 and 9.0% of T4 cases. The involvement of lymph nodes (N) was in 57.3%, 6% N1, 12.6% N2 and 4.4% N3. Remote metastasis (M1) was observed in 4.5% of cases.

Conclusion: familial breast cancer represents 13.6% in our center, diagnosed at a young age and a stage at the time of the early diagnosis. These results are consistent with several studies in America and Europe. In addition, in the presence of a family history of breast cancer, screening and genetic counselling should be done to clarify the incidence of expectations in familial oncology.

INTRODUCTION

Breast cancer is the most common women cancer and is the leading cause of cancer death (Issacand al., 2006). It is an eminently heterogeneous and multifactorial pathology, which can involve an interaction between environment, lifestyle, hormonal and genetic factors. Breast cancers are predominantly sporadic, with no other reported cases in the family, but family aggregation has been found in about 20% of cases (Collaborative Group, 2001). A family history is one of the most important risk factors for the development of breast cancer. Women with a history of first-degree breast cancer are twice as likely to develop breast cancer compared to women without a history of breast cancer. The risk is higher when the antecedent is younger at the time of diagnosis (Bevier and al., 2012, Pharoahand al., 1997). About 5-10% of breast cancers can be explained by an inherited predisposition of several specific genes (Blackwood and al., 1998). Breast cancer occurring in a woman with a family history of this cancer is known as familial breast cancer. Sometimes, the term inherited breast cancer is used to describe breast cancer in families with an apparently dominant inheritance, suggesting a penetrance of a breast cancer risk gene (Harisand al., 2011)

Given that breast cancer is common, a family history of breast cancer could not necessarily be a common cause; Family breast cancer is characterized by an abnormally high number of family members with this cancer and generally at a younger

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age than that observed in the general population. According to Branstand al. (2009), familial breast cancer occurs at an earlier age and with a poor prognosis as compared to sporadic cases. In addition, NICE guidelines (2013) provide recommendations for the classification and care of women who have an increased risk of developing breast cancer due to family history. The main information required is the age and type of tumours and the number of cases in the family. Using this information, a family tree can be drawn, showing the person and their parents in the first degree (mother, father, brothers, sisters, children); Second-degree parents (grandparents, uncles, aunts, nieces, nephews, half-brothers and half-sisters); (Grandparents, grand uncles and aunts, first cousins) for a comprehensive history (National Institute for Health and Care Excellence, 2013). In this study, we sought to estimate the prevalence of familial breast cancer in our center and to describe the epidemiological, clinical and prognostic characteristics of patients with a family history of breast cancer at the Mohammed VI Center For the treatment of cancers, CHU IbnRochd Casablanca.

PATIENTS AND METHODS

Type of study

This is a cross-sectional study conducted at the Mohammed VI Centerfor the treatment of cancers, at IbnRochd University Hospital (one of the two major centers for the treatment and treatment of cancer in Morocco).

Study Population

We included in our study consecutively all cases of breast cancer having been taken care of at the Center from January first to the December 31thof 2014. Data collection was done retrospectively, based on patients' medical records. The data collected included:

- *Socio-demographic data:* age at diagnosis, marital status, menopausal status, oral contraceptive use, number of children and the notion of a family history of breast cancer.
- *Clinical data*: stage at diagnosis, tumour size, lymph node invasion, distant metastasis, histological type, histological grade, laterality with the quadrant or tumour region, hormone receptor status, and receptor Her2 (Human Epidermal Growth factor) and the Ki-67 proliferation index.
- *Therapeutic data:* neoadjuvant chemotherapy, radiotherapy, adjuvant chemotherapy, hormone therapy and targeted therapy.

The data entry was carried out by Microsoft Office Excel (2007) and the analysis of the variables by the Epi Info software. The association study by crossing the variables between the different groups was evaluated by the chi-square test. The test is considered significant when $p < 0.05$.

RESULTS

During the year 2014, a total of 655 cases were managed at the Mohammed VI center for the treatment of cancers, 13.6% (89 cases) of cases had a family history of breast cancer in 46,1% of cases were first-degree, 24.7% of second-degree and 29.2% of third-degree cases (Table 1). The mean age at diagnosis was 46.8 ± 10.1 years (26 -70 years). 60.5% of the cases were married, the parity was 2.1 ± 1.8 children, 29.2% of the cases used an oral contraceptive and menopause was found in 25.8% of the cases.

The left lateral tumour was observed in 52.8% of cases and bilateral in 4.5% of cases. The stage at diagnosis was in most cases early (stage I and II) (66.3%) and late (stage III and IV) in 33.7% of the cases. In the TNM stage, tumour size T1 was observed in 39.3% of cases, T2 in 36.0%, T3 in 12.4% and T4 in 9.0% of cases. The involvement of the lymph nodes (N) was in 57.3% N0, 23.6% N1, 12.6% N2 and 4.4% N3. Remote metastasis (M1) was found in 4.5% of cases. In our series the most frequent histological type was infiltrating carcinoma of the cannula (85.4% of cases), followed by invasive carcinoma (4.5%), infiltrating lobular carcinoma (1.1%), other rare types Infiltrating medullary carcinoma, infiltrating micro-papillary carcinoma, mucinous carcinoma...) in 9.0% of cases. The most frequent SBR histological grade was SBR II (56.2%), followed by SBR III (31.5%), while SBR I was observed in only 1.1% of cases.

Table 1 Epidemiological and clinical characteristics of patients

Caracteristics	Percentage (%)
Mean age	46.8 ± 10.1 years
Parity	2.1±1.8 children
Postmenopausal	25.8
Use of oral contraceptives	29.2
Family history of breast cancer	
First degree	46.1
Second degree	24.7
Third degree	29.2
Stage at diagnosis	
Early (Stage I and stage II)	66.7
Late (stage III and stage IV)	33.7
Tumour size (T)	
T1	39.3
T2	36.0
T3	12.4
T4	9.0
Lymphadenopathy (N)	
N0	57.3
N1	23.6
N2	12.6
N3	4.4
Distant métastasis (M)	
M0	95.5
M1	4.5
Histological type	
Invasive ductal carcinoma	85.4
Invasive carcinoma	4.5
Invasive Lobular carcinoma	1.1
Other	9.0
HistologIcal grading SBR	
SBR I	1.1
SBR II	56.2
SBR III	31.5
Hormonal Receptors	
Estrogen	55.1
Progesterone	49.4

Hormone receptor positivity was observed in the studied series, 55.1% of cases with oestrogen and 49.4% of cases with

progesterone. Her2 was over expressed in 13.8% of cases. The Ki-67 proliferation index was over expressed in 37.1% of cases and 23.1% of cases were triple negative.

The difference in age was not significant according to the degree of kinship in our sample, 45.4 ± 10.5 years at the first level, 47.7 ± 10.4 years at the second level and 48.2 ± 10.0 years at the third level (p = 0.5) (Table 2). The stage at earlier diagnosis was observed in cases with a first-degree history (42.4% of cases), the second and third degree were respectively in 27.1% of cases and 30.5% of cases.

Table 2 Age of onset of breast cancer by degree of relationship

Degreeof Kinship	Age ± Standard déviation	P value
First degree	45,4 ± 10,5	0,5
Second degree	47,7± 10,4	
Third degree	48,2± 10,0	

DISCUSSION

Breast cancer is a multifactorial disease, which may involve an interaction between the environment, lifestyle, hormonal and genetic factors. A family history is one of the most important risk factors for the development of breast cancer. The risk is higher when the antecedent has a younger age at the time of diagnosis.

In this study, 89 cases of breast cancer with a family history of breast cancer were treated within the center, accounting for 13.6% of cases, 46.1% of whom were first degree, 24.7% of the second degree and 29.2% of the third degree. According to the literature, the notion of a family history of breast cancer varies from 15 to 20% of the cases (Colditzand al., 1993), while that reported in our study matches those described by several authors. Moreover, Molahand al. (2015) had a prevalence of 13.4%, as did Jacobi and al. (2003), who observed a family history of breast cancer in 13.0% of cases. In the Swedish family cancer database, 16.0% of cases have a family history of familial breast cancer (Kharazmiand al., 2012).

In our series, the mean age at diagnosis was 46.8 ± 10.1 years (26-70 years). Family breast cancer occurs at a younger age. The risk is higher when the antecedent has a younger age at the time of diagnosis. Several studies have shown that familial breast cancer occurs at an age less than 50 years. In fact, Terrayand al. (2015) in a cohort of 31,640 cases showed that the age at diagnosis was 49.8 ± 14.8 years (Terrayand al., 2015). The risk ratio associated with a family history of breast cancer tends to be increased when parents diagnosed for breast cancer were younger, especially for women less than 50 years old. For example, among women under 50 years old, the risk of having a parent diagnosed with breast cancer before age 50 was 2.41 (1.86 - 3.12) for an affected mother and 3,18 (2.15 - 4.72) for a sister with this cancer (Collaborative group, 2001). In our series the stage at the time of diagnosis was in most cases very early (stage I and II) in 66.3% of the cases and late (stage III and IV) in 33.7% of the cases. These findings are consistent with the literature that describes a family history of cancer as being more likely to be screened more often and at an earlier stage (Brandt and al., 2012). The stage at diagnosis is one of the factors affecting successful cancer treatment, which is itself influenced by screening practices. Breast cancer survival rates depend on the stage at diagnosis (World Health Organization, 2008). According to the National Cancer Institute, 5-year survival of breast cancer in women diagnosed earlier in stage 0 and stage I is 88 to 93% and 15 to 78% in the advanced stage, stage II, stage III and Stage IV (National Cancer Institute, 2011). Tumour size and axillary lymph node involvement at the time of diagnosis are key factors related to the risk of distant metastasis (Brekelmansand al., 2007).

In our study, the TNM stage, T1 tumour size was observed in 39.3% of cases, T2 in 36.0%, T3 in 12.4% and T4 in 9.0% of cases, lymph node involvement (N) was in 57.3% N0, 23.6% N1, 12.6% N2 and in 4.4% N3, the distant metastasis (M1) was found in 4.5% of the cases. The impact of tumour size on a family history of breast cancer is unknown. However, some studies have shown that tumours detected in women with a family history of breast cancer were smaller (Randall and al., 2009, Walker and al., 2013), and even less likely to have a lymph node involvement and remote metastasis (Moller and al., 1999, Tilanus-Linthorstand al., 2000). In our study, we did not find a significant age difference according to degree of kinship; It was 45.4 ± 10.5 years at the first level, 47.7 ± 10.4 years at the second level and 48.2 ± 10 years at the third level (p = 0.5). According to the literature there is a significant difference according to the degree of kinship of age at the time of diagnosis of breast cancer. Moreover, Noh and al. (2014) showed a significant difference in the age of onset of breast cancer in the first and second degree, respectively 57 years and 40 years. This age difference in cancer occurrence can be influenced by several factors such as lifestyle, including diet and physical activity.

CONCLUSION

Family breast cancer accounts for 13.6% in our center, diagnosed at a younger age and a stage at the time of earlier diagnosis compared to cases without a family history of breast cancer. These findings are consistent with several studies in America and Europe; several factors can influence this outcome such as lifestyle, diet, physical activity and mutation in other genes involved in breast cancer. Increased early detection and the implementation of a family history recognition program should be considered. In addition, in the presence of a family history of breast cancer, screening and genetic counselling should be done to clarify the incidence of expectations in familial oncology.

Reference

1. Issac, D., Gukas, Barbara, A. Jennings, Barnabas, M. Mandong, Agabus, N. Manasseh, Ian Harvey, Samuel, J. Leinster (2006): A comparison of the pattern of occurrence of breast cancer in Nigeria and British women, Breast 15; 90-95.
2. Collaborative group on hormonal factors in breast cancer. Familial breast cancer (2001): collaborative reanalysis of individual data from 52 epidemiological studies including 58 209 women with breast cancer and 101 986 women without the disease. Lancet; 358: 1389-1399.
3. Bevier, M, Sundquist, K, Hemminki,K. (2012): Risk of breast cancer in families of multiple affected women and men. Breast Cancer Res Treat; 132: 723-728.

4. Pharoah PD, Day NE, Duffy S, Easton DF, Ponder BA, (1997): Family history and the risk of breast cancer: a systematic review and meta-analysis. *Int J Cancer*; 71: 800-809.
5. Blackwood, M. and Weber, B, (1998): BRCA1 and BRCA2: from molecular genetics to clinical medicine. J ClinOncol; 16: 1969-1977.
6. Harris, H., Nippert, I.Julian-Reynier, C., Schmidtke, J., van Asperen, C., Gadzicki, D., Tibben, A., Evans, D.G., (2011) : Familial breast cancer : is it time to move from a reactive to a proactive role? FamCancer; 10 (3): 501-503.
7. Brandt, A., Bermejo, J.L., Sundquist, J., Hemminki,K. (2009): Age of onset in familial breast cancer as background data for medical surveillance. Br J Cancer; 102 (1): 42-47.
8. Colditz GA, Willett WC, Hunter DJ, Stampfer MJ, Manson JE, Hennekens CH, Rosner BA. (1993): Family history, age, and risk of breast cancer. Prospective data from the Nurses' health study. JAMA; 270: 338-343.
9. Molah Karim, S.A., Ali Ghalib, H.H., Mohammed, S.A., Fattah, F.H.R. (2015): The incidence, age at diagnosis of breast cancer in the Iraqi Kurdish population and comparison to some other countries of Middle East and West. Int J Surg. janv; 13: 71-75.
10. Jacobi, C.E., Jonker, M.A., Nagelkerke, N.J.D., van Houwelingen, J.C., de Bock,G.H. (2003): Prevalence of family histories of breast cancer in the general population and the incidence of related seeking of health care. J Med Genet; 40 (7): 83–83.
11. Kharazmi, E., Fallah, M., Sundquist, K., Hemminki, K. (2012): Familial risk of early and late onset cancer: nationwide prospective cohort study. BMJ; 345: 8076.
12. Terry, M. B., Kelly-Anne, P., M. B. Daly, Esther Mary Beth, M. John, I. L.Andrulis, S.S. Buys, D. E.Goldgar, J. A. Knight, A. S.Whittemore, Wendy K Chung,C.Apicella and J. L. Hopper, (2015) : Cohort Profile: The Breast Cancer Prospective Family Study Cohort (ProF-SC) : *International Journal of Epidemiology*, 1–10
13. Brandt, A., Sundquist, J., Hemminki,K. (2012): Risk for incident and fatal prostate cancer in men with a family history of any incident and fatal cancer. Ann Oncol; 23(1): 251e6.
14. World Health Organization. World Cancer Report 2008. Cedex: International Agency for Research on Cancer ; 2008.
15. National Cancer Institute. Cancer Staging. National Institutes of Health; 2010 [cited 2011 Dec 10]; Available from: http://www.cancer.gov/cancertopics/factsheet/detection/staging.
16. Brekelmans, C.T., Tilanus-Linthorst, M.M., Seynaeve, C., vdOuweland, A., Menke-Pluymers, M.B., Bartels, C.C., *et al*. (2007): Tumour characteristics, survival and prognostic factors of hereditary breast cancer from BRCA2-, BRCA1- and non-BRCA1/2 families as compared to sporadic breast cancer cases. Eur J Cancer; 43 (5) :867- 876
17. Randall, D., Morrell, S., Taylor, R., Hung, W.T. (2009): Annual or biennial mammography screening for women at a higher risk with a family history of breast cancer: prognostic indicators of screen-detected cancers in New South Wales, Australia. Cancer Causes Control; 20: 559-566.
18. Walker, M.J., Mirea, L., Cooper, K., Nabavi, M., Glendon, G., Andrulis, I.L., *et al*. (2014): Impact of familial risk and mammography screening on prognostic indicators of breast disease among women from the Ontario site of the Breast Cancer Family Registry. Fam Cancer; 13(2): 163-172
19. Møller, P., Reis, M.M., Evans, G., Vasen, H., Haites, N., Anderson, E., *et al*. (1999): Efficacy of early diagnosis and treatment in women with a family history of breast cancer. Dis Markers; 15: 179-186.
20. Tilanus-Linthorst, M.M., Bartels, C.C., Obdeijn, A.I., Oudkerk, M. (2000): Earlier detection of breast cancer by surveillance of women at familial risk. *Eur J Cancer*; 36: 514-519.
21. Myoung, N., J. Doo Ho Choi, HyejinBaek, Min-Ji Kim, Hyojung Park, Seung Jae Huh, Won Park, *et al*. (2014): Genetic Anticipation of Familial Breast Cancer with or without BRCA Mutation in the Korean Population. Cancer Genetics 207; 160–163.
22. National Institute For Health and Care Excellence (2013):Familial Breast Cancer: Classification, Care and Managing Breast Cancer and Related Risks in People with a Family History of Breast Cancer | Guidance and Guidelines | NICE. https://www.nice.org.uk/guidance/cg164? unlid=43072165201639233618.

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