
RESEARCH COMMUNICATION

Breast Cancer in Iran: Results of a Multi-center study

Iraj Harirchi*, Mojgan Karbakhsh¹, Amir Kashefi², Amir Javad Momtahan²

Abstract

Introduction: Breast Cancer is the most common cancer in Iranian women. This study aims to demonstrate the characteristics of breast diseases- and especially breast cancer- according to pathologic records in Tehran, Iran. **Methods:** In this cross-sectional study, all records of pathologic specimens (biopsy or mastectomy) categorized as "breast diseases" from 1996 to 2000 in five teaching hospitals in Tehran were studied. For each patient, sex, age, breast pathology, pathological staging of malignant lesions, side and location of the tumor and the type of surgery were reviewed by a trained general practitioner. SPSS version 10 was used for statistical analysis. **Results:** The mean age of women with breast cancer was 48.8. The highest frequency of malignancies was observed in the 40-49 age group (31.8%). Twenty-three percent of breast cancers were observed in women younger than 40 years. About 83 percent of malignant lesions in women were in T2, T3 or T4 at diagnosis. Only about 4 percent of women with breast cancers had tumors in stage I or in-situ carcinomas. Nearly 70 percent of the cancers were detected only after lymph node involvement. Only 4.3 percent of our female cases had the chance of conservative mastectomy. Twenty-eight percent of specimens from biopsies in women were malignant. **Discussion and Conclusion:** In Iran, breast cancer affects women at least one decade younger than their counterparts in developed countries. A considerable proportion of our cases (96%) were in stage II or III at diagnosis. These results show advanced cases at presentation in Iran which further mandate a national cancer detection program involving more effective public education and encouragement of women for breast self-examination and participation in screening campaigns.

Key Words: Breast cancer - Iran - age dependence - stage - screening

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Introduction

Breast cancer is the most common neoplasm in females in the world (Magrath, 2003), with approximately 41,000 women die of this disease each year (Winer et al., 2001). According to the GLOBOCAN database of the International Agency for Research on Cancer (IARC), there were over a million new cases in the world in the year 2000, 579,285 occurring in more developed countries and 471,063 in the less developed countries (Magrath, 2003). Furthermore, the rates in women living in developing regions are rising (Harris et al., 2000). In the Middle East, breast cancer is the most common malignancy among women (Kahan et al., 1997). Similarly in our country-I.R.Iran-, breast cancer ranks the first among cancers of women, comprising 21.4 percent of

all malignancies in females (Summary of Report on Cancer Incidence in Iran, 2000). In Tehran, the capital city, breast cancer is again the most common cancer among women (25.5 percent of the total) with a crude incidence rate of 22.4 in 100,000 in the year 1998 (Shamsa and Mohagheghi, 2002).

The study of nature, stage and age distribution of breast cancer in less-industrialized nations, especially those lacking well established cancer registration systems can help both policy-makers and physicians implement preventive and therapeutic modalities that best suit the clinical and epidemiological picture of this malignancy in the community. The present cross-sectional study aimed to determine the characteristics of breast diseases- and especially breast cancer- according to pathologic records from hospitals in Tehran, Iran.

*Assistant Professor of Surgery, Cancer Institute, Tehran University of Medical Sciences; Senior Researcher, Iranian Center for Breast Cancer, Tehran, Iran. ¹Assistant Professor of Community Medicine, Tehran University of Medical Sciences, Tehran, Iran. ²Investigator, Tehran University of Medical Sciences, Tehran, Iran

Corresponding author: Central Building of Tehran University of Medical Sciences, Taleghani St, Qods St, Enqelab St, 14178, Tehran, Iran. POBox: 14155/6559 E-mail: harirchi@sina.tums.ac.ir

Materials and Methods

In this cross-sectional study, all records of pathologic specimens (biopsy or mastectomy) categorized as "breast diseases" from 1996 to 2000 in five teaching hospitals in Tehran were studied. To improve the representativeness of the sample, we avoided studying cases from referral centers (like Iranian Cancer Institute). From 2649 records, 264 were excluded because these patients had two records; one for biopsy specimen and the other for mastectomy. So, in these cases, the two records belonged to one patient and had to be counted only once. For each patient, sex, age, breast pathology (according to ICD-10 and ICD-O), pathological staging of malignant lesions (based on AJCC TNM Classification (Fleming ID, et al., 1997), side and location of the tumor and the type of surgery were reviewed by a trained practitioner. Clinical staging of patients was not possible due to lack of relevant information on metastasis status. SPSS version 10 was used for statistical analysis. $\alpha=0.05$ was considered as the level of statistical significance.

Results

Of 2343 studied cases, 2120 (90.5%) were female. Among women, 1291 subjects (60.9%) had benign conditions, 778 (36.7%) suffered from breast cancer and 51(2.4%) had dermatological diseases. Due to importance of breast cancer in women-which is of main focus in this study, the characteristics of breast cancer females are demonstrated in Table 1. In the table, percents in each category are calculated according to valid (nonmissing) cases. The mean age of women with breast cancer was 48.81 (0.95 CI= 47.90-49.73). The higher frequency of malignancies in the 40-49 age group still prevails after age adjustment (based on female age distribution in Tehran, 1996 census)($P= 0.000005$).

Considering local extension of tumors, about 83 percent of female malignant lesions were in T2, T3 or T4 at diagnosis. In fact, only about 4 percent of women with breast cancer had tumors in stage I or in-situ carcinoma.

There was a significant relation between size of malignant tumors and age of women ($P= 0.031$); for instance, 12.1 percent of women in 20-29 age group had cancers equal or less than 2 cm in diameter, while this was 20.8 percent in 40-49 age group.

Among malignant tumors, 51.7 percent were in the left breast, 47.1 percent in right breast and 1.2 percent were bilateral. Upper-outer quadrant was the most frequent site of malignant lesions (with 39.9%), followed by peri-areolar region (18.4%). In 16.1 percent of cases, the lesion was large enough to involve more than one anatomical region of breast. The commonest surgical intervention for malignant lesions was modified radical mastectomy (in 89.4%). Conservative mastectomy was performed only in 4.3 percent.

The commonest benign lesions of the breast among women were fibrocystic change (with 39.7%) and fibroadenoma (with 30.5%). Mean age of women with

benign lesions was 35.9 (0.95 CI=35.16-36.63).

The ratio of malignant to benign lesions tended to increase with age. In fact, it was lowest for women in the 20-29 age group (0.1) and highest for women older than 60 (2.3).

Of 223 male cases, 201 (90.1%) were diagnosed with benign, 16 (7.2%) with malignant and 6 (2.7%) with dermatological diseases. Mean ages of men with benign and malignant diseases of the breast were 33.4 and 58.4 years, respectively. The commonest pathologies in these two categories were gynecomastia (91.5%) and invasive ductal carcinoma (75%), respectively. Interestingly enough, there were one carcinoid tumor, a hydatid cyst, a hamartoma and three lymphoma among our female cases.

Table 1. Characteristics of Women with Breast Cancer in a Multi-center Study in Tehran, Iran

	Number	Percentage
Age groups(in years)		
<20	0	0
20-29	35	4.8
30-39	134	18.2
40-49	234	31.8
50-59	187	25.4
≥ 60	145	19.7
Type of breast cancer		
Invasive ductal carcinoma	593	76.2
Lobular carcinoma	32	4.1
Medullary carcinoma	26	3.3
Comedo-carcinoma	24	3.1
Tubular carcinoma	19	2.4
Mucinous carcinoma	18	2.3
Others	66	8.5
Tumor size		
≤ 2cm	142	18.9
2-5cm	463	61.6
≥ 5cm	147	19.5
Tumor local extension		
T0	2	0.3
T 1	129	17.1
T2	441	58.5
T3	120	15.9
T4	62	8.2
Lymph node involvement		
N0	166	31.26
N1	360	67.8
N2	5	0.94
Stage		
Stage 0	2	0.36
Stage I	21	3.81
Stage II a	160	29.04
Stage II b	232	42.10
Stage III a	74	13.43
Stage III b	62	11.25

As in women, the malignant to benign ratio increased with age in men. Sixty percent of malignant tumors of men were in stage III at diagnosis and the remaining 40 percent were in stage II.

Considering the specimens that came from biopsy (not mastectomy), the ratio of benign to malignant specimens was 1/2.62 in women and 1/12.4 in men. In other words, 28 percent of specimens from women and 7 percent from men were malignant.

Discussion

Results of this study and reports from the young and growing registry system for cancers in Iran demonstrate the importance of breast cancer from a national and international perspective (Shamsa and Mohagheghi, 2002).

Our study showed the largest proportion of cases (31.8 percent of breast cancer in women) occurring in the age-group 40-49 years. This is very similar to the 33.3 percent in this age group reported from Bahrain (Fakhro et al., 1999) and an other study by the author from Iran (Harirchi et al., 1997). In Yemen, the age groups of women mostly affected have been 30-39 and then 40-49 years (Abdul et al., 2001). A paper from Pakistan reports the mean age to be 47.7 (Malik, 2002), which is very similar to mean of our cases. So, in Iran, like other developing countries of Asia and Africa (Fakhro et al., 1999; Abdul et al., 2001; Malik, 2002; Jin et al., 1999; Ezzat, 1999; Al-Moundhir et al., 2003; Ibrahim et al; 1998;), breast cancer affects women at least one decade younger than their counterparts in developed countries (Sant et al., 1998; Cancer facts and figures 1995).

In our study 28% of biopsy specimens in women were malignant. So, for formulating diagnostic guidelines in our country, we have to consider that about one out of three to four breast lesions biopsied in Iranian women turns to be cancer.

Although the prevailing literature indicates that breast cancer in women under 40 and especially under 30 is uncommon (Scheibel and Bucciattelli, 2003; Jeffery and Wei, 1996; Shannon and Smith, 2003), in our study 23 percent of breast cancer was observed in women younger than 40. So, simple observation, which is usually recommended for most of breast tumors in young women, is not safe enough for a country like ours with a predilection of breast cancer for young ages (Harirchi et al., 1997).

Invasive ductal carcinoma comprised more than 76 percent of breast cancers in women. This is similar to our national report (81.2%)(Summary of Report on Cancer incidence in Iran, 2000).

Our data indicates that like studies from other developing countries, women with breast cancer in Iran visit the physician rather late in the course of the disease (Fakhro et al., 1999; Al-Moundhir et al., 2003). Our findings showed that more than 60 percent of malignant tumors in women were 2-5 cm in size and about 80 percent were larger than 2 cm. In terms of staging, more than 70 percent presented in stage II and about 25 percent in stage III. These results, which

are seriously alarming, show advanced cases at presentation in Iran like some of our neighboring countries (Fakhro et al., 1999; Al-Moundhir et al., 2003). Considering this picture and the fact that more advanced cases of breast cancer are less amenable to tissue-sparing surgery (Abdul et al., 2001), it's not surprising that only 4.3 percent of our female cases had the chance of conservative mastectomy. Nearly 70 percent of our cancers were detected only after lymph node involvement. This was about 90 percent in a study in Yemen (Abdul et al., 2001).

All these result show an urgent need for a national cancer detection program involving more effective public education and encouragement of women for breast self- examination and also education of primary care physicians for strengthening this strategy. Experience from other countries show that after introduction of breast cancer screening programmes, the stage at diagnosis has decreased significantly (Catalano et al., 2003).

The situation leading to late discovery of a potentially curative cancer in our country might be further affected by scarcity of female surgeons and social embarrassment of some women for being examined by male attendants. Although there is no evidence to suggest that religious beliefs interfere with early detection behaviors and contribute to subsequent delayed presentation of breast cancer in Iranian women (Montazeri et al., 2003) more studies to assess the attitudes and practices of women for participation in breast cancer screening and their utilization patterns are necessary to prove this.

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