RESEARCH COMMUNICATION

Breast Cancer in Ardabil Province in the North-West of Iran: an Epidemiological Study

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Abstract

Breast cancer accounts for about 26% of all newly diagnosed cancers in women aged 20 to 59 years. As part of a basic program for cancer control, the present cross sectional descriptive study was conducted with the objective of determining the epidemiology of breast cancer in Ardabil province during 2003-2010. Necessary information on 469 recorded cases of breast cancer in the registry were collected by check list from patient's files and then analyzed by statistical methods with SPSS.16 software. Some 455 of the patients (97%) were female, 329 (70.1%) residing in Ardabil. The mean age was 46.8±13.6 and most were in the age group of 40 - 60. The most prevalent pathologic form was infiltrative ductal carcinoma with 316 cases (67.4%), the largest proportion being grade II (30.6%), but very many belonged to grades III and IV (40.5%). Breast cancer in Ardabil province appeared to slightly increase over the period studied. The results were similar to other places in Asia. With regard to this, more widespread studies are required to determine factors influencing the prevalence at low age and also how to promote early detection.

Keywords: Breast cancer - epidemiology - incidence rate - Ardabil cancer registry - Iran

Introduction

Cancers considered as the third causes of mortality. Breast cancer (BC) is the most frequent cancer (23% of all cancers) (Parkin et al., 2002) and the most fatal form of malignancy among women (Anderson et al., 2008; Fouladi et al., 2011), accounting for 16% of cancer deaths (Who report., 2008). Therefore, BC remains a major health problem worldwide. Annually, over one million new cases of breast cancer are diagnosed in the world. The breast cancer incidence increasing in the world which is related to longevity, change of life style and mortality reduction from other diseases. Despite the increased prevalence of breast cancer, its mortality rate is declining, which is due to the early diagnosis using screening method by mammography and therapeutic advances (Brunicardi et al., 2010). Although, the incidence of breast cancer in white-skinned females is more common, the mortality rate in American black women was 20% higher than white women. Death from breast cancer increased with age and 54% of breast cancer deaths occur in women aged 65 and above (Mousavi et al., 2009). Breast cancer is of the most prevalent cancer and the major cause of death resulting from cancer in women aged 20-59 which generally form 26% of all newly diagnosed cancers in women. The risk of breast cancer in United States women was 1 in 8 in 2004. The incidence and mortality rates from breast cancer in Asian, African, underdeveloped countries, and

the societies that don't follow the western lifestyle and dietary regimen is low but it is more in European, North American, and industrial countries women (Townsend et al., 2004). The risk of breast cancer in United States, European countries, and Iran, was 1 out of 8, 1 out of 12, and 1 out of 35; respectively (Hoel et al., 1983). Breast cancer rates in urban areas is higher. The incidence and age-adjusted mortality rates of breast cancer vary by 5 times between different countries. The highest rate can be seen in the northern America, and the Western Europe, whereas the lowest amount can be found in Japan (Mousavi et al., 2009). Although, the difference between far eastern and western countries is decreasing but a five-fold extent of difference still remains between them. The African black's less than American blacks are diagnosed with cancer. The reported incidence rate of breast cancer in most of the Asian countries is very low (Sadjadi et al., 2003). Annually, more than 70000 new cases of cancer occur in Iran, and from them 30000 cases lose their lives from cancer. According to the studies conducted in Iran, the breast cancer is the most common cancer and ranked first malignancies among women and includes 24.4% of the all cancers that its crude incidence is approximately 17.81% and an ASR of 23.65 in the year of 2006 (Sadjadi et al.,2005; Goya et al., 2007; Mousavi et al., 2009). The breast cancer, after esophageal and stomach cancers, is the

most pervasive type of cancer among women in Ardabil province, and its incidence rate is rising (Babaei et al., 2009). Insofar as the fundamental programming for the control of cancers includes screening, early diagnosis, treatment, palliative service, and data collection system; the present study was conducted, aiming at investigating the epidemiology of breast cancer in Ardabil province during the years of 2003-2010.

Materials and Methods

This is a cross-sectional descriptive study that has been done on 469 breast cancer cases which were recorded in cancer registry center of Ardabil province, from 2003 to 2010. The necessary information containing age, place of living, type of malignancy pathology and grading were extracted from the records and entered into a checklist. Collected data were analyzed using table, graph and statistical tests such as chi-square, t-test, and ANOVA in SPSS.16 software. The level of significance was considered $p<0.05$. For estimating the annual incidence rate of the disease in these years, the statistical report of the province population was drawn on.

Results

During the study period, 2003-2010, 469 cases of breast cancer were documented in the cancer registry unit. Of the cases, 455 (97%) were female and 14 (3%) were

Table 1. Pathological Type of Breast Cancer in Patients

Pathological type	Frequency	Percentage
Infiltrative ductal carcinoma	316	67.4
Invasive ductal carcinoma	68	14.5
Breast carcinoma in situ	6	1.3
Medullary carcinoma	12	2.6
Metastatic breast cancer	4	0.9
Paget's…	7	1.5
Other pathological types	20	4.1
Unspecified pathology	36	7.7
Total	469	100.0

Table 2. Grade Type of Breast Cancer in Patients at the Time of Diagnosis

Malignancy grading	Frequency	Percent
Grade I (Well Diff)	85	18.1
Grade II (Mod Diff)	144	30.6
Grade III (Poor Diff)	123	26.2
Grade IV (Un diff)	67	14.3
Without grading	50	10.7

Table 3. The Incidence Rate of Breast Cancer Per 100000 in Ardabil Province During the Study Years

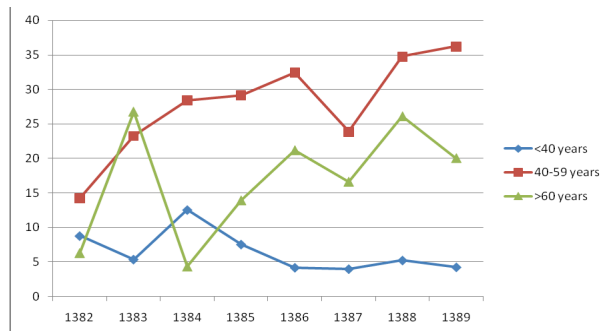| Year	Incidence rate	Number of cases	Population
2003	3.92	49	1247996
2004	4.09	51	1245107
2005	5.60	71	1254249
2006	4.37	55	1256980
2007	4.85	58	1265988
2008	4.89	49	1002399
2009	5.55	70	1262027
2010	5.16	67	1193338

Figure 1. Breast Cancer Incidence Per 100000 in Age Groups
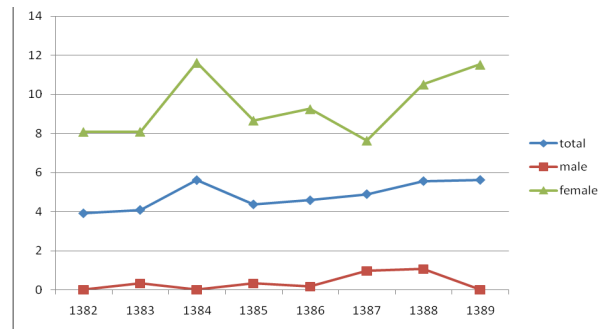

Figure 2. The Incidence Rate of Breast Cancer Per 100000 in Ardabil Province

male. 329 cases (70.1 %) resided in Ardabil city and the rest were from other parts of the province. The mean age of the patients was 46.80 ± 13.64. Most of them with 240 patients (51.2%) belonged to the age group 40-60. The mean age of male was 61.92 ± 16.90 and female 46.34 ± 13.28 years and there was a significant difference between two groups (P=0.001). Infiltrative ductal carcinoma with 316 cases (67.4%) was the most prevailing form of pathology among patients (Table 1). The majority of individuals with 144 cases (30.6%) were at grade two of breast cancer (Table 2). The highest rate of breast cancer incidence in women related to the years 2005 and 2010, while the lowest incidence rate linked to 2008. The rate of breast cancer incidence in age group 40-59 was higher than other age groups (Figure 1). The rate of breast cancer incidence during the study years has extended from 3.92 per 100000 to 5.61 per 100000 (Table 3). The rate of breast cancer incidence in females during the study years has been increased from 8.1 per 100000 to 11.8 per 100000 (Figure.2).

Discussion

In this study, the highest rate of breast cancer incidence has been occurred in the age group 40 - 59. It seems that the common incidence age of the breast cancer in Ardabil province is a decade lower than those in western countries; on the other hand by comparing the incidence rate of breast cancer with other studies, it can be noticed that the incidence age of this cancer has been decreased. This fall might be taken as a result of changes in peoples' life styles and nutrition, the increase of carcinogen factors and also improves screening and the early diagnosis of disease (Peto et al., 2000; Hill et al., 2005; Mousavi et al., 2009). It was seen that in the current study, the highest of

incidence rate and frequency of breast cancer was reported on Ardabil city which is related to the high population of this city, more medical facilities, on time screening, and the greater exposure of women with carcinogenic agents that should be considered. Results revealed that the mean age of patients was 46.34 ± 13.28. Likewise, the studies run in the different areas of Iran have come up with similar mean ages for breast cancer, ranging from 46 to 48 (Zafarghandi et al ., 1998; Bakhtiari., 2006). It shows that the average age of patients will follow the same pattern. In two studies conducted in Iran the mean age of breast cancer diagnosis has been reported 61 years (Yaghmayee et al., 2007; Sadjadi et al., 2009). The low mean age of breast cancer diagnosis in Ardabil (nearly two decades) than these countries can be related to the low age of the cancer incidence in Ardabil province than developed countries or age in different races that confirms the necessity of planning and conducting extensive breast cancer screening programs for the lower age in Iran than other societies. Similar to other studies, the present study, found Ductal Carcinoma (Invasive and infiltrative types) as the most frequent type of breast cancer which comprised 81.9 % of the whole cases (Norsaadah et al., 2005; Ayadi et al., 2008). By compare the result of current study with other studies showed that the incidence of breast cancer increased which might be as a result of cancer registry system improvement, breast cancer diagnosis improvement, and the increasing of the disease risk factors during these years. The results showed that the breast cancer incidence in Ardabil province is lower than other areas (17-18). According to the obtained Annual percentage change) APC), an increase is seen in 2010 compared to 2003 that it can be related to complete registration system, life style changes and environmental risk factors.

In conclusion, breast cancer incidence and age in the Ardabil province is less than other countries that is require to doing more detailed investigations on the factors affecting the incidence of the disease at the lower age. The lowness of breast cancer incidence rate in Ardabil province can probably be attached to the imperfectness of cancer registry system, the deficiency in screening, late diagnosis, racial difference, nutrition, and other environmental risk factors and lower age mean of the people in this area. Therefore, the stage of the cancer in the patients should be determined and discussed. Since the high incidence rate is likely to be due to on time and proper undertaking of the screening programs, while there isn't any efficient system on this issue in Iran. At the final point, the improvement of cancer registry system, breast cancer screening and doing different studies on the role of environmental risk factors affecting on age changes have been suggested.

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