International Journal of
Analytical, Pharmaceutical and Biomedical Sciences

Volume: 4: Issue-3: March-2015 *ISSN:2278-0246*

www.ijapbs.com

INCIDENCE RATE OF BREAST CANCER IN IRANIAN WOMEN, TREND ANALYSIS FROM 2003 TO 2009

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ABSTRACT: Background: Breast cancer is the most common cancer among women worldwide. In Iran, breast cancer ranks first among cancers diagnosed and the fifth most common cause of death for Iranian women. The aim of this study was to evaluate the incidence rate and trend of breast cancer in Iranian women. Methods: National Incidence from Iranian annual of national cancer registration report from 2003 to 2009 included in this study. The crude rate and age standardized rate were employed to express the incidence of breast cancer. Results: The age standardized rate of breast cancer increased from 15.96 to 28.25 per 100,000 for women and Crude Rate of breast cancer increased from 12.9 to 22.09 per 100,000 for women, during the period of the study. Conclusion: Our study indicated remarkable increasing trends in breast cancer incidence. So, attention to high risk groups and setting awareness programs can reduce the incidence of this cancer in future.
Keywords: Breast Cancer, Incidence, Trend Analysis, Iranian Women.

INTRODUCTION

Cancer is a group of diseases that cause cells in the body to change and grow out of control (1). Cancer is a major public health problem in Iran. Based on recent reports from the Ministry of Health and Medical Education (MOHME) (2-4); it is the third cause of death in Iran after coronary heart disease and accidents (5,6). Breast cancer (BC) is the most common cancer among women worldwide (7). In Iran, breast cancer ranks first among cancers diagnosed in women (8). This cancer is the most frequent cancer in population of women in Tehran too (5) and the fifth most common cause of death for Iranian women (5). Global statistics showed that annual incidence of breast cancer is increasing and this is occurring more rapidly in countries with a low incidence rate of breast cancer (6, 9, 10). Breast cancer occurs more frequently in wealthy countries (9, 11) due to a higher prevalence of its risk factors, such as older age at first pregnancy, low parity, high-calorie intake, sedentary occupation and use of hormonal replacement therapy (12-14).

Regarding younger age group and psychological and emotional burden in patients and their family, its early detection and appropriate treatment are important. Ultrasonography and mammography can help physicians for suitable management of these patients (15, 16). When detected and treated early, 5-year relative survival for localized breast cancer is 99%. For regional disease, it is 84% and if the cancer has spread to distant organs, 5-year survival drops to 24%. Larger tumor size at diagnosis is also associated with decreased survival (17).

Breast cancer is most frequently diagnosed among women aged 55-64, and the percent of its mortality is highest in this age range (18). The risk of getting breast cancer increases with age and approximately 77% of women with breast cancer are over the age of 50 at the time of diagnosis (17).

Ductal carcinoma in situ (DCIS) is the most common type of non-invasive breast cancer. Invasive ductal carcinoma (IDC), sometimes called infiltrating ductal carcinoma, is the most common type of breast cancer. About 80% of all breast cancers are invasive ductal carcinomas. Although invasive ductal carcinoma can affect women at any age, it is more common as women grow older. According to the American Cancer Society, about two-thirds of women are 55 or older when they are diagnosed with an invasive breast cancer. Invasive lobular carcinoma (ILC), sometimes called infiltrating lobular carcinoma, is the second most common type of breast cancer after invasive ductal carcinoma. About 10% of all invasive breast cancers are invasive lobular carcinomas (19).

The aim of this study was to determine trends of breast cancer incidence in Iranian women, during a period from 2003 to 2009.

METHOD

The data for this study extracted from national incidence registry data which derived from Iranian annual of national cancer registration report from 2003 to 2009 (Islamic Republic of Iran Ministry of Health and Medical Education. Center for disease control and prevention no communicable deputy cancer office 2009) (20). The Ministry of Health and Medical Education in Iran registered all new cancer cases, according to pathology reports, in each state of Iran and data published after revision.

Age Standardized Rate (ASR) and Crude Rate (CR) of breast cancer for Iranian women from 2003 to 2009, and also rate of breast cancer based on age groups were expressed as the annual incidence per 100,000 and the trend of ASR, CR, and three most common morphologies of breast cancer in Iran was drawn.

RESULTS

All incidence records due to breast cancer from 2003 to 2009 are included in the analysis. The ASR of breast cancer dramatically increased during these years from 15.96 to 28.25 per 100,000 for women. And the crude rate, increased from 12.19 to 22.09 per 100,000 for women, during the time under study (Table 1, Figure 1).

Annual incidence rate of breast cancer increased from 27.2 to 40.03 per 100,000 for age group 30-50 years old, and increased from 41.03 to 84.53 per 100,000 for age group more than 50 years old (Table 2, Figure 2).

Three most common morphologies of breast cancer in Iranian women are Infiltrating Duct Carcinoma, Lobular Carcinoma Nos, Intraductal Carcinoma Noninfiltrating Nos. The trend of these common morphologies is in the same increasing line (Table 3).

DISCUSSION

This study based on the national registry data, indicated increasing trends in breast cancer incidence in the period under study. Other study revealed that, there is an increasing trend for BC mortality in Iran in recent decade, although its mortality is still relatively low compared with Western industrialized countries (9). Iran is located in the western part of Asia which in this region, breast cancer in women is number one (21). Some of the factors associated with breast cancer like being a woman, age, race, genetics, menstrual history and family history can't be changed (1, 19). In a vulnerable household women's health assessment study which covered 11 provincial centers in Iran, 6.6% of participants reported the family history of breast cancer (22). Other factors including obesity, lack of exercise, smoking cigarettes, eating unhealthy food, drinking alcohol, radiation to chest or face before age 30, pregnancy history, breastfeeding history and using Hormone Replacement Therapy (HRT), can be changed by making choices (1, 19).

The ASR of breast cancer is low (17.1/100 000 person-years), as it is in most Asian countries: 20.6, 21.8 and 33.3 for Eastern, South-Central and Western Asia respectively (23-25). This is in contrast to North America and Europe where the highest rates of breast cancer are observed (99.4 per 100 000 person-years for North America and 82.5, 62.4, 84.6 and 42.6 per 100 0000 person-years for Northern, Southern, Western, and Central and Eastern Europe respectively) (23, 24, 26). The difference has been attributed to variations in lifestyle and environmental exposure (6, 27) and in part to the presence of screening programs detecting early invasive cancers in the more affluent regions (28).

Age-adjusted incidence rates for breast cancer peaked in Iranian women aged 45–54 years (29, 30). Similar findings have been reported in a number of Asian countries such as Pakistan (49.8 years) (31) and Lebanon (49.8 years) (32). In contrast, in the United States, the highest incidence rate is among women aged 75–79 years and the median age at the time of diagnosis is 61 years (33). Similarly, in the United Kingdom cancer of the breast becomes more common with age, approximately 80% of cases occur in women over the age of 50 years, with the peak in the 50–64 years age group (34). The mean age at the time of diagnosis of breast cancer in most developing countries is around 50 years, which is at least 1 decade younger than in developed countries (31-33).This might be due to the lower age structure of the Iranian population (34).

CONCLUSION

A high proportion of breast cancer patients had advanced stage of disease at their first presentation and at the time of diagnosis. This could be a reflection of Iranian patients' perception of stigma associated with having a diagnosis of cancer in general and breast cancer in particular (30). Apart from the role of risk factors in Iranian breast cancer patients (such as sociocultural issues, lifestyle habits, and reproductive history) (35, 36) perhaps lack of information in terms of preventive measures, lack of screening programs, and scarce resources, all have contributed to the present situation (30) So, attention to high risk groups and setting awareness programs can reduce the incidence of this cancer in future (37).

Table1. Age Standardized Rate and Crude Rate of breast cancer in Iran from 2003 to 2009

	ASR	Crude Rate
2003	15.96	12.19
2004	18.24	13.84
2005	23.16	17.44
2006	25.06	18.9
2007	27.15	20.42
2008	33.21	24.66
2009	28.25	22.09

Table2. Annual incidence rate of breast cancer for Iranian women from 2003 to 2009 according to age groups (per 100,000)

	15-30	30-50	>50
2003	2.79	27.2	41.03
2004	1.34	31.1	47.5
2005	1.76	38.6	60.82
2006	1.6	41.48	66.93
2007	2.23	43.85	72.91
2008	2.79	53.12	89.35
2009	1.62	40.03	84.53

Table3. Three most common morphologies of breast cancer in Iran

	IDC	LCN	ICNIN
1382	3235	182	96
1383	3782	218	89
1384	4785	347	133
1385	5037	361	119
1386	5278	383	303
1387	6452	460	243

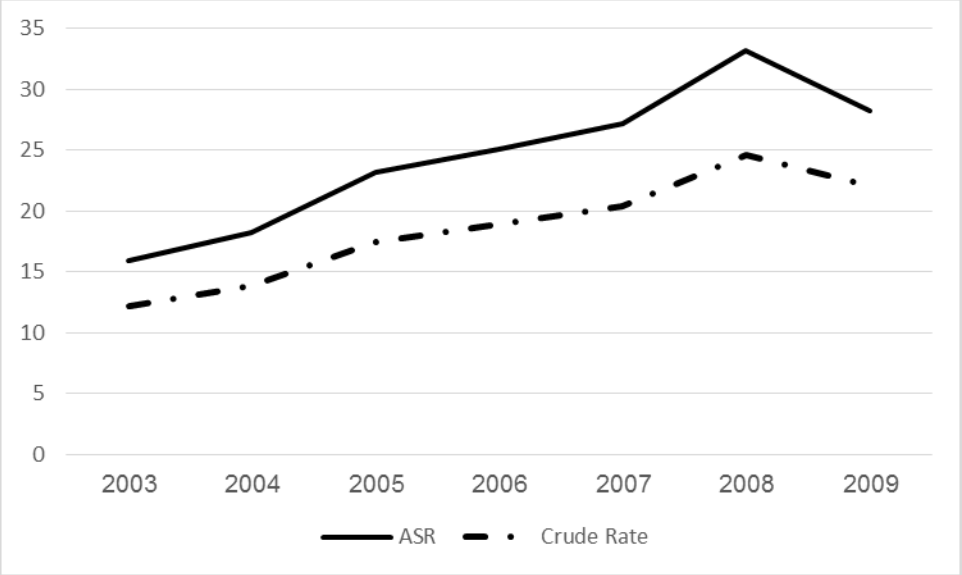

Figure1. The trends of ASR and Crude Rate of breast cancer incidence in Iran from 2003 to 2009

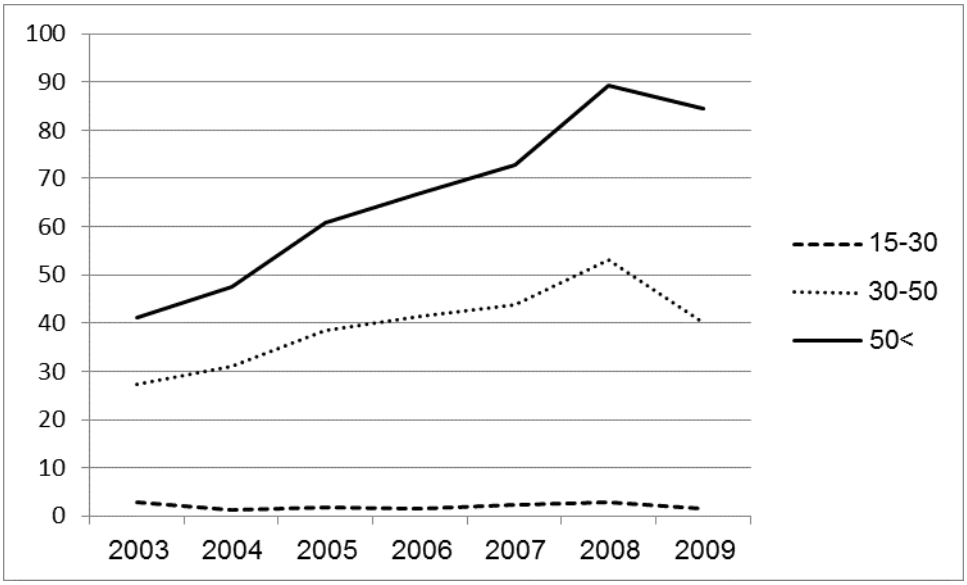

Figure2. The trends of breast cancer incidence for Iranian women from 2003 to 2009 according to age groups (per 100,000)

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