RESEARCH COMMUNICATION

Increased Trend of Breast Cancer Mortality in Iran

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Abstract

Background: Breast cancer is the most commonly diagnosed cancer in women worldwide In Iran, it ranks first among cancers diagnosed in women and is the fifth most common cause of death. The aim of this study was to present the mortality trends from breast cancer for Iranian women during a period of almost a decade, in order to provide update information regarding the likely future. Methods: We analyzed National death Statistic reported by the Iranian Ministry of Health and Medical Education from 1995 to 2004 to generate annual mortality rates/100,000, overall, by age group (<15, 15-49 and ≥50 years of age) and age standardized rate (ASR). Results: The age standardized mortality rate of breast cancer increased dramatically during these years from 1.40 to 3.52 per 100,000 and its mortality was increasing 151.4% for Iranian women, although it seemed that the rate leveled off from 2002 to 2004. Moreover the increasing rate was higher for those aged between 15-49 compared to age >50 years old. Conclusion: There is an increasing trend for breast cancer mortality in Iran. Thus, health education programs to rectify the lack of women awareness about breast cancer signs and effective screening are urgently needed.

Keywords: Breast cancer - mortality - burden - Iranian females

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Introduction

Breast cancer (BC) is the most commonly diagnosed cancer in women worldwide (Parkin et al., 2005). Global statistics show the annual incidence of breast cancer is increasing and this is occurring more rapidly in countries with a low incidence rate of breast cancer (Parkin et al., 200; Wilson et al., 2004). It has been reported that each year over 502,000 women die from the disease (World Health Organization., 2009) and it causes more than $7 billion direct economic loss (medical costs) per year worldwide (Forbes., 1997). BC is the most commonly diagnosed cancer and the second-leading cause of cancer-related deaths among women in the U.S (U.S. Cancer Statistics Working Group., 2010). It is also the most common tumor in European women and is the first cause of death by cancer in females (Izquierdo et al., 2008).

Breast cancer occurs more frequently in wealthy countries (Parkin et al., 1997) due to a higher prevalence of BC risk factors, such as older age at first pregnancy, low parity, high-calorie intake, sedentary occupation and use of hormonal replacement therapy (Kogevinas et al., 1997; Marks and Shinberg., 1998; Zheng et al., 1993), On the other hand, BC survival is lower in less affluent countries and in women with low income or educational level (Kogevinas et al., 1997).

Cancer is a major public health problem in Iran. Based on recent reports from the Ministry of Health and Medical Education (MOHME); it is the third cause of death in Iran after coronary heart disease and accidents (Naghavi et al., 2009). In Iran, breast cancer ranks first among cancers diagnosed in women (Sadjadi et al., 2005) comprising 24.4% of all malignancies with a crude incidence rate and ASR of 17.4 and 23.1 per 100,000, respectively (Mousavi et al., 2009). BC is the most frequent cancer in women population in Tehran too (Mohagheghi et al., 2009) and the fifth most common cause of death for Iranian women (Akbari., 2008). BC has increased in Iran since 1999 according to Iranian cancer registry data (Shamsa and Mohagheghi., 2002).

Hence, it is necessary and important to get accurate projections of age-specific breast cancer mortality rates. These projections are of major public health interest. The aim of this study was to present the mortality trends from BC for Iranian women during a period of almost a decade, in order to provide update information regarding time trends for this cancer.

Materials and Methods

National death Statistic Reported by the MOH&ME from 1995 to 2000 (registered death statistics for Iranian

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population at the Information Technology and Statistic Management Center, MOH&ME) and from 2001 to 2004 (published by MOH&ME) (Naghavi., 2002; Naghavi., 2003; Naghavi., 2004) stratified by age group and cause of death (coded according to the 9th revision of the International Classification of Diseases [ICD-10] are included in this analysis. Breast cancer [ICD-10: C50] were expressed as the annual mortality rates/100,000, overall, by age group (<15, 15-49 and ≥50 years of age) and age standardized rate (ASR) (Ahmad et al., 2001). The populations of Iran in 1995-2004 were estimated, using the census from 1996 conducted by Statistics Centre of Iran and its estimation according to population growth rate for years before and after national census.

Results

All death records for women due to BC from 1995 to 2004 are included in this study. The age standardized mortality rate of BC increased dramatically during these years from 1.40 to 3.52 per 100,000 (Figure1 and Table1) and BC mortality was increasing 151.43% for Iranian women, however it seems that the rate would be leveled off from 2002 to 2004. Moreover BC mortality was higher for older age (Table1 and Figure2). But the increasing rate was higher for age between 15-49 compare to age>50 years old. In younger age, the mortality from 0.74 per 100,000 in 1995 was increased to 2.08 per 100,000 in 2004 (181.08% increasing) whereas, in older age, there

Figure 1. Trends of Breast Cancer Mortality During the Period 1995-2004 (Crude Rate and Age Standardized Rate per 100,000)

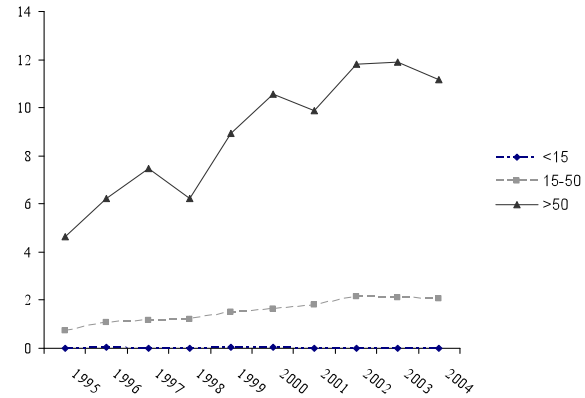

Figure 2. Age Specific Rate (per 100,000) for Breast Cancer Mortality During the Period Rate Per 100,000)

Table 1. Age Specific Rate (per 100,000) and Age Standardized Rate (per 100,000) for Breast Cancer Mortality

Year	<15	15-49	>=50	Crude Rate	ASR
1995	0	0.74	4.63	0.96	1.4
1996	0.03	1.08	6.24	1.36	1.93
1997	0.02	1.14	7.47	1.54	2.23
1998	0.02	1.2	6.24	1.41	1.99
1999	0.05	1.49	8.93	1.91	2.74
2000	0.06	1.65	10.58	2.12	3.18
2001	0.01	1.82	9.88	2.38	3.11
2002	0	2.14	11.8	2.75	3.69
2003	0	2.1	11.9	2.72	3.69
2004	0	2.08	11.16	2.58	3.52

was 141.04% increasing from 1995 to 2004.

Discussion

There is an increasing trend for BC mortality in Iran and it is possible that, breast cancer will become a leading cancer in our country, although its mortality is still relatively low compared with Western industrialized countries.

Recently, breast cancer mortality figures in Europe varied between 12 deaths per 100,000 in Spain and 19.3 deaths per 100,000 women in Hungary (World Health Organization: Cancer., 2008). Since the 1990s, age-adjusted mortality rates for BC have declined in most of the developed world, particularly in the young and middle-aged groups (35–64 years). In the United Kingdom and Switzerland, BC mortality decreased about 30% between 1990 and 2006 (Bulliard et al., 2006), whereas in most Southern, Northern, and Western European countries the decline was between 15% and 25%, and in the Eastern Europe, breast cancer mortality only decreased moderately or remained stable during the same period (Hery et al., 2009; Autier et al., 2011). In contrast, Russia was experiencing an increase trend (Hirte et al., 2007), where the ASR increased until 2004 and decreased thereafter.

According to WHO mortality database, between 1990 and 2006, the ASRs for BC in women in three Asian countries/regions (Japan, Hong Kong and Korea) were lower than the ASRs in Western countries. Korea had the lowest ASRs among the three Asian countries regions, and the UK had the highest ASRs among Western countries. In Asia, an increasing trend was observed for the ASR in Japan and Korea, whereas the ASR in Hong Kong appeared to be slowly decreasing (Katanoda and Yako-Suketomo., 2010).

Iranian data suggested a similar decreasing trend, in compare to other Asian countries. The data of Korea (in the period 1984-2003) revealed a similar results to Iranian data according to increasing trend and also amount of mortality pre 100,000 (Choi et al., 2006). A study in China indicated that, between 2002 and 2008, the mortality from BC increased by 201% among urban women, while among rural women the rate did not show the significant increase. This study concluded that the reversed urban–rural is primarily caused by the increases among elderly urban women (He et al., 2011) and a Japanese study showed,

there has been a marked increase in years of potential life lost (YPLL) associated with breast cancer among women (from 0.06 years in 1950 to 0.30 years in 2000) (Kono et al., 2005).

Iran is located in the western part of Asia which in this region, breast cancer in women is number one, generally followed by gastric, oesophageal or cervical lesions (Moore., 2010). The incidence of the BC is rising in our country, patients present with advanced stage of disease and they are relatively younger (about 10 years) than their western counterparts (Harirchi et al., 2000; Mousavi et al., 2007). It seems that breast cancer affects Iranian women at least one decade younger than women in developed countries, with the mean age ranging from 47.1 to 48.8 years (Harirchi et al., 2004). And more than 36% of the tumors occur in women under 40 years old (Mousavi et al., 2006).

Early detection of breast cancer plays the leading role in reducing mortality rates and improving the patients' prognosis among women (Elmore et al., 2005; Hoerger et al., 2011). In US, BC mortality rates are now decreasing because of the widely generalized use of mammography screening and the improvement in treatment (IARC., 2002). These recent falls of BC mortality in westernized countries have been larger in younger than older women. The relative contribution of screening and better systemic treatment to this downward trend is complex to disentangle (Levi et al., 2005; Botha et al., 2003). A relevant impact of screening on breast cancer mortality has been reported (Threlfall et al., 2003; Fracheboud et al., 2004), and, mammography use was inversely related to trends in breast cancer mortality in various US states over the period 1985–2000 (Das et al., 2005).

In Korea, the National Cancer Screening Program against breast cancer in 2002 started and the five-year survival rates for BC have improved significantly from 78.0% in early 1993-1995 to 90.0% in 2004-2008 which indicated that improvement of the survival rate may be partially due to the early diagnosis of BC (Park et al., 2011).

Our study provides comprehensive projection for Burden of death due to BC, indicating that the trend of BC mortality in Iranian women was dramatically increased in recent decade. In Iran, there is not a national screening program for controlling and early diagnosis of BC. Early detection of breast cancer is the key for decreasing its burden. So, specific screening measures should be implemented for Iranian women and special programs should be considered for younger women (Mousavi et al., 2006; Harirchi et al., 2011). On the other hand Iranian studies indicated that the women's awareness of BC warning signs and effective screening were very inadequate (Yavari and Pourhoseingholi., 2007; Montazeri et al., 2008). Thus, health education program to rectify the lack of women awareness is urgently needed. Indeed the focus of primary health care providers should be to raise awareness about breast care among women.

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