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Prevalence of Breast Cancer in Isfahan Province, Iran

Zahra Tolou-Ghamari [1, *]

[1] Isfahan Kidney Transplantation Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

[*] *Corresponding author*: Isfahan Kidney Transplantation Research Center, Isfahan University of Medical Sciences, Isfahan, Iran. Tel: +98-3136642478, E-mail: toloeghamari@pharm.mui.ac.ir

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Abstract

Background: According to previous studies, breast cancer seems to be the most prevalent cancer and a significant reason of cancer-related deaths among women. Age, race, menorah history, characteristics of breast, reproductive patterns, and many other factors could be mentioned as the risk factors for this disease.
Objectives: The aim of this study was to determine the prevalence and incidence rates associated with breast cancer.
Methods: Data related to topography code C50 for the period of 2011 to 2015 were obtained from the Isfahan Cancer Registry office, and its prevalence rate was calculated and expressed per 100000 persons.
Results: There were 4413 cases of breast cancer, 10% of which constituted death record data. The minimum and maximum reported ages were 19 and 94 years old, respectively. The mean age of women was 51.2 $\pm$ 12.9 years old. Breast cancer period prevalence was 179.8.1 per 100000 cases that indicated an increment in its incidence by 21.4%. Intraductal carcinoma was reported in 68% of the cases.
Conclusions: During our study period, there was a 21.4% increase in the incidence of breast cancer in Isfahan Province. Further attention of healthcare authorities associated to economic and moral supporting of women to face with this situation, routine detection methods', pharmacotherapy and surgical care recommends to be valuable.

Keywords: Cancer, Prevalence, Iran, Breast

1. Background

Breast cancer is the most frequently identified type of cancer among women worldwide, and the incidence of this disease is estimated to be 1.7 million by 2020 (1-4). Regarding Iranian women, breast cancer is mentioned as one of the most frequent malignancies (5). Previous published reports indicated increased incidence and poor survival of this disease in the developing countries (1-4).

In the year 2005, breast cancer was reported as the leading cancer amongst Saudi women that accounted for 24% of all newly identified malignancies with a median age of 46 years old (6). The result of an epidemiological review by Mousavi et al. in 2007 confirmed that this disease is most prevalent in patients aged 40 - 49 years old. In this study, an incidence of 22 per 100000 persons was reported (5). Another study of Iranian population confirmed that breast cancer constitutes about one-third of all cancers in women and is the second ranked cancer after lung cancer.

Death rate due to breast cancer in 2003 across 29 provinces was reported as 2.7 per 100000 women (7). Jazayeri et al. in 2015 ascribed that in the Iranian female population, breast cancer accounts for 24.6% of all cancer cases. A mean age of 49.6 years was reported in that study. The most common types of cancer (95.7%) among women was mentioned as invasive ductal carcinoma and invasive lobular carcinoma. The average annual crude incidence rate of primary breast cancer in women was 22.6 (95%CI, 22.1 - 23.1) per 100000 cases, with an age standardized rate (ASR) of 27.4 (95%CI, 22.5 - 35.9) (8).

Inequalities, scarcity and health care admission obstacles could have an undesirable impact on the health and wellness of population subclasses that could bear an unequal part of these socioeconomic difficulties (9).

2. Objectives

Isfahan Province is situated in the center of Iran and ranked as the third most populated province in Iran (4982100 persons) after Tehran and Mashhad. As the increase in cancer-related diseases is a worldwide challenge for health strategies, we provided the preliminary crude rates and incidence data associated with breast cancer in Isfahan Province, Iran.

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3. Methods

Breast cancer data from 2011 to 2015 were obtained from the Isfahan Cancer Registry, located at the Isfahan Deputy of Health. The study was conducted at the Isfahan Kidney Transplantation Research Centre (IKTRC) and was approved by the Institutional Review Board (No. 295115). The cancer sites studied were defined according to the international classification of diseases (ICD-O; Third Edition). All cancers were defined by topography code. For example, breast cancer was defined by topography code C50. De-identified patient name and surname, demographics such as age and gender and date of cancer diagnosis were recorded in Excel.

Research data were of both qualitative and quantitative types (discrete and continuous variables) and were measured with nominal and relative rating scales. To describe the data, descriptive statistics (i.e., mean, maximum, and minimum) were used. Age, as a continuous variable, was expressed as mean $\pm$ standard deviation (SD). The normal distribution of age was tested using the Kolmogorov-Smirnov test. Variables such as alive/dead, and year of report were expressed as frequency and percentage.

Data regarding the total population of Isfahan city were obtained from the Isfahan/Program and Budget Management Organization. Breast cancer period prevalence (PP) was calculated as the proportion of total cases over the period of 2011 - 2015/ to population at risk during the same period $\times$ 100000.

Incidence rate (Ir) was calculated as dividing new cases of cancer during the given period/ to population at risk during the same period $\times$ 100000. The statistical analysis of d-Base was performed by SPSS, version 20 (Chicago, IL, USA) for windows (10-12).

4. Results

Demographic and epidemiological characteristics of the female breast cancer patients are presented in Table 1. There were 4413 women with breast cancer that corresponded to the period prevalence of 179.8 per 100000 cases.

As displayed in Figure 1, the mean age of the patients was 51.2 $\pm$ 12.9 years old.

In 2% of the women, breast cancer occurred within the age range of 19 to 30 years old. Further, 46% of the women were aged 30 to 50 years old, 43% were within the group of 50 to 70 years old, and 9% of the population were aged between 70 and 95 years old (Figure 1).

Figure 2 shows that from the year 2011 to 2015, the variations in the incidence rate of the disease were as follows: 41.2 (2011 - 2012) to 46.7 (2012 - 2013) to 41.6 (2013 - 2014) and 50.0 (2014 - 2015) per 100000 cases (Figure 2). Among all the studied breast cancer cases, 3971 were living and 442 cases had died. In 68% of the population studied, a monographic code was specified for intraductal carcinoma.

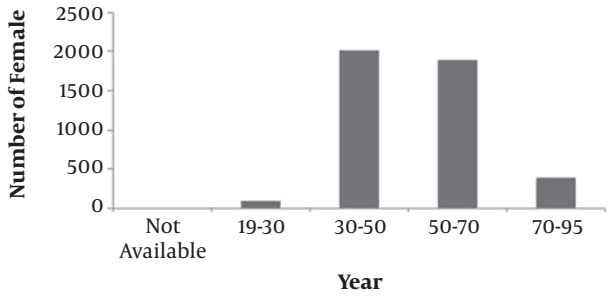

Figure 1. Age distribution in women with breast cancer

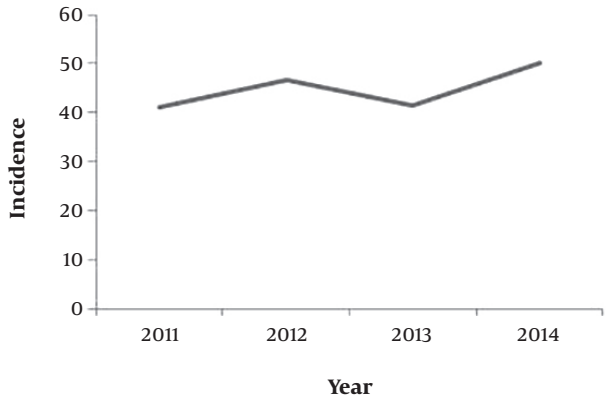

Figure 2. Incidence of breast cancer during the study period

5. Discussion

Breast cancer is one of the most common types of malignancy and the leading cause of cancer-related deaths in women worldwide. It could be mentioned as an international challenge regarding women's health schemes all around the world and Iran (13).

In agreement with a previous study, the mean age of 4413 female breast cancer patients in this study was 51.2 years old. Mousavi et al. in 2007 confirmed that age in women with breast cancer ranged from 15 to 84 years old, with those aged 40 - 49 being the most prevalent (5). Although Anders et al. in 2009 revealed that approximately 7% of women with breast cancer are diagnosed before the age of 40 years old (13), in this study in 835 (19%) of women breast cancer presented before 40 years of age, which signifies a 171.4% increase when compared to previous reports

Table 1. Demographic and Epidemiological Characteristics in Female Patients with Breast Cancer

Population Studied	Number	ELC	ED	Age (Min - Max)	PP	Ir, 2011 - 2012	Ir, 2012 - 2013	Ir, 2013 - 2014	Ir, 2014 - 2015
Total	4413	3971	442	65.8 (1 - 103)	179.8	41.2	46.7	41.6	50.1

Abbreviations: Ir, incidence rate; PP, period prevalence.

(13). This is in agreement with the findings of another study in which defined Iranian breast cancer patients were relatively younger than their Western counterparts (14).

In this study, of the total reported deaths, in 69% of the cases patients were aged between 40 and 70 years old. A recent report in 2017 confirmed that annual mammography beginning at the age of 40 decreases mortality (15). With a crude rate of 179.8 per 100000 persons, the incidence from 2011 to 2015 increased by 21.4%. A study by Balekouzou et al. in 2016 confirmed a 15.3% prevalence with the most prevalence at the age of 50 - 54 years, as well as age-standardized incidence and death of 11.19 and 9.97 per 100000 cases, respectively (16). In this study, out of the total population studied (n = 4413), 10% of the women had died. A study showed an association between diabetes mellitus type 2 and increased risk of death (17). Another study suggested that incidence and mortality rate in high-resource countries have been declining, while mortality in low-resource countries has been increasing (18). Finally, although during recent years significant improvements associated with detection methods (19, 20), pharmacotherapy and surgical management of Iranian women with breast cancer have been achieved, but the findings of this study suggest the advantage of further investigation of genetic and environmental risk factors in Isfahan, Iran.

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Footnotes

Authors' Contribution: Dr. Zahra Tolou-Ghamari started and completed this study from idea to final version of the manuscript.

Ethical Considerations: Ethical Code No 295115 appreciated.

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