RESEARCH COMMUNICATION

Five Year Survival of Women with Breast Cancer in Ardabil, North-West of Iran

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Abstract

Breast cancer is the most common cancer in women, and the major cause of cancer deaths in women 20- 59 years old. The present retrospective study was undertaken to examine survival in all newly diagnosed breast cancer in Iran. One hundred and sixty-one breast cancer registered patients in 2003 were included in the study and followed up for 5-years from cancer diagnosis. Data were analyzed using life tables and Kaplan Meier for estimating relative survival rates and Cox's proportional hazard model to investigate the interaction between variables. The mean age of the patients at diagnosis was 45.5 (SD=12.3), ranging from 19 to 86 years. Of all patients 90 (56%) were alive and 71(44%) were dead after five years. Using life table analysis, the overall relative 5-year survival rate was found to be 51% (SE=0.05). Using Cox regression model analysis variables such as age, surgery, location and drug therapy significantly influenced survival. According to the results, the overall 5-year survival rate in Ardebil province was lower than other places of Iran and most countries in the world and needs to be improved. Also, results showed that breast cancer screening programs, awareness regarding early detection of breast cancer and education of health care providers are necessary.

Key words: Breast cancer - survival - Kaplan Meier - Cox regression model - life table

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Introduction

Breast cancer is the most common cancer in women. The mean age of breast cancer patients in Iran, similar to Middle East countries, is ten years lower than other countries in the world. Moreover, due to lack of doing screening tests, most of patients referred for cure in the advanced stages of cancer (Brunicardi et al.,2010). During the last fifty years, the changes in human life-style have been caused to increase the incidence and prevalence rate of breast cancer and different risk factors in the world (Fathi et al.,2004). According to Iranian ministry of health statistics, breast cancer remains the most common cancer among Iranian women and now, more than 40000 patients are suffering and annually over 7000 patients are added to their number. According to the last reports, breast cancer has become in first place between diseases among women. Now, the risk factors of breast cancer not fully specified but there are several etiological factors that affect the survival of patients.

According to latest statistics, age of diseases in Iranian women was decreased about ten years and reach from 40 to 30. Annually, more than 1100 new cases of cancers are recorded in women of Ardabil province and of these 600 deaths occur. The most common cancers among women are stomach, esophagus and breast, respectively. Age standardized incidence rate (ASR) of breast cancer in Ardabil province was 11.9 per 100000 from 2004 to 2006 (Registry cancer, 2008). Breast cancer is one of the most common cause of death among middle-aged women in both developed and developing countries but not common in adult women younger than 25, so its incidence rate increase rapidly to age 50 and older. In the recent sixty years, the mortality rate from breast cancer has been increased in all countries (Brunicardi et al.,2010; Esteve et al.,1990)). Nowadays; breast cancer is considered as a social problem in all societies and one of the main causes of death among women after the lung cancer.

The survival of patient is one of the main criteria for disease control and measuring the effect of treatments. The survival rate for breast cancer indicates the percentage of people survive the disease for a specified period of time after diagnosis. In most cases, statistics refer to the 5 year survival rate for breast cancer. The 5-year survival rate is the percentage of people who are alive 5 years after a breast cancer diagnosis. There are different methods for estimating the survival rate of patients. Usually, in a specified period and based on

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registered cancer data, the relative survival is estimated rather than overall survival (Ederer et al., 1961; Heinavaara et al., 2002; Anderson et al., 2003). Several studies in the world have been reported different rates of survival for breast cancer. In communities with limited access to medical facilities, screening of breast cancer could identify the disease in the early stages and to cause improving prognosis, increasing survival rate and reduce mortality rate. Differences in incidence, mortality and survival in regions of the world because of differences in risk factors, need access to effective treatments and organized screening programs (Anderson et al., 2003). Different treatments including surgery, radiotherapy and chemotherapy based on disease severity for breast cancer treatment exist and prognosis of breast cancer has fundamental relation with stage of disease at diagnosis (Gizlic et al.,1997; Lynn et al., 2006). The object of this study was to measure the five-year survival and determines effective factors in Ardabil breast cancer patients who registered in Ardabil cancer registry.

Materials and Methods

This was a retrospective study to examine survival rate in Ardabil registry cancer. One hundred and sixty-one registered breast cancer patients with a confirmed pathological report diagnosed at 2003 were entered into the study and followed up for five years from 2003 to 2008. Necessary data such as age at diagnosis, sex, residence place, treatment, tumor type and status of patient's survival or die have been collected by a questionnaire and for patients with incomplete data, required information completed by telephone and interview. Collected data were analyzed using life table analysis to estimate the overall relative survival rate, Cox regression model to investigate the interaction between variables on survival and log - rank test for compare survival rates by variables.

Results

Of the 161 patients with breast cancer, 2 (1.24%) were male and 159 (98.74%) were female with sex ratio about 1 to 80. The mean age of the patients at diagnosis was 45.5 (SD=12.3), ranging from 19 to 86 years. Of these, at five years 90 (56%) were alive and 71(44%) were dead after five years. The mean survival time was 55 (SD=2.8) months ranging from 0 to 89 months. Using the life table analysis the overall 5- year relative survival rate was found to be 51% (SE=0.05) (Figure 1). Of these, 80 % (with 41.4% mortality) were in the age group of 19-35. Breast involvement in 72 cases (44.7%) was in right and in 89 cases (55.3%) were in left breast. From all patients, 123 (76.4%) have Duct Carcinoma Infiltrative and 38(23.6%) have other tumors. Out of all cases, 115 (71.4%) were in urban areas with mortality rate 34.8% and 46 (28.6%) were in rural areas with

Table 1. Cox Regression Model Results

Variables	B	SE	sig	Exp(B)
Age at diagnosis	0.055	0.3	0.049	1.06
Surgery	-1.63	0.36	0.001	0.2
Drug	-0.98	0.38	0.01	1.9
Residence place	0.58	0.024	0.025	1.79

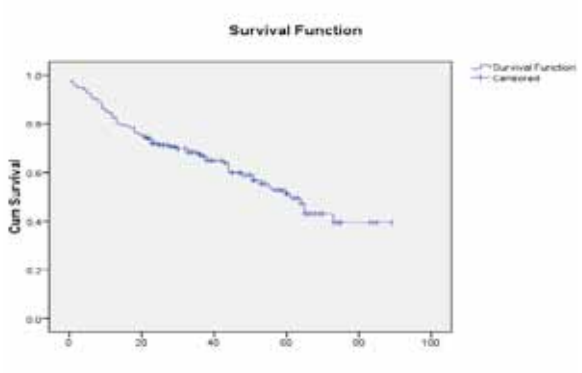

Figure 1. The Five – year Survival Rates in Patients

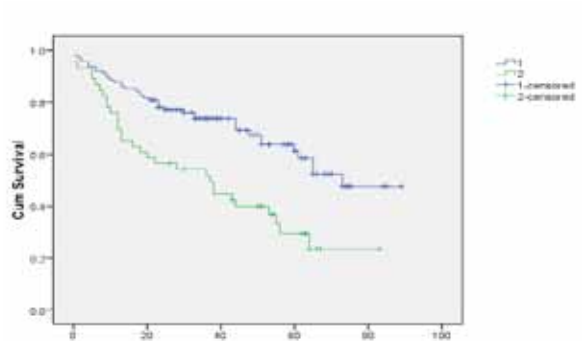

Figure 2. Survival Rate by Residence Place

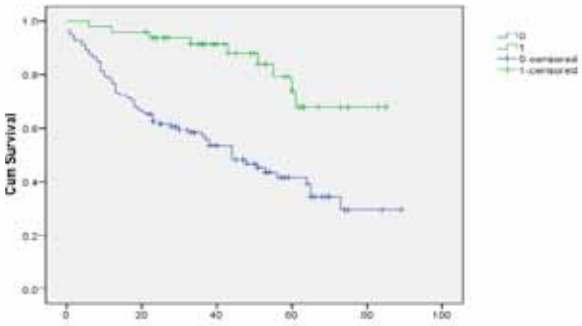

Figure 3. Survival Rate by Drug Use

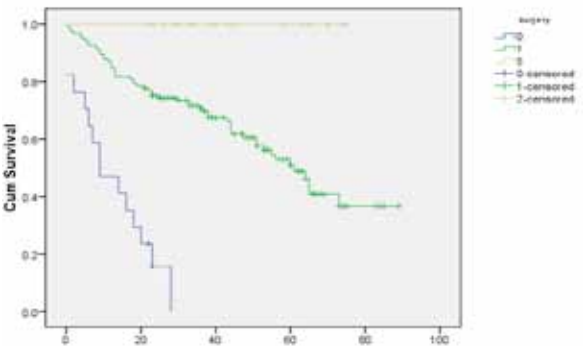

Figure 4. Survival Rate by Residence Place

mortality rate 67.4% which in urban patients, chance of survival was two times more than rural patients (Figure 2). Mortality rates in mastectomy group were 44.5% and in lumpectomy group was zero. Patients receiving drugs with mortality rate 18.5% had twice chance of survival than people who not received drugs (Figure 3). Patients undergoing surgery with mortality rate % 39 have 2.3 chance of survival more than people who not received any surgical treatment (Figure 4). Finally performing the Cox regression analysis, variables such as place of residence (P=0.011), surgical treatment (P=0.001), drug treatment (P=0.004) and age at diagnosis (P=0.01) have significant effect on survival of patients (Table 1).

Discussion

This was a retrospective study of breast cancer patients in Ardabil province of Iran and the overall 5-year relative survival rate was found to be 51%. The study was carried out based on data collected from a single cancer registry in Ardabil province with incomplete data forms and therefore the findings could not be generalized. However, the results showed that, the mean age at diagnosis was 45.5 years which have the similar pattern with other studies conducted in Iran and was lower nearly two decades less than America and Canada may be due to low age of breast cancer incidence in Ardabil province and Iran, compared with developed countries or variation in race of peoples in the world (Zafarghandi et al., 1998; Bakhtiari et al., 2006; Sadjadi et al.,2009; Howlader et al., 2010). The finding indicated that patients who received no surgery had poorer survival compared to those who received mastectomy and lumpectomy. Also, patients who received lumpectomy had upper survival compared to those who received mastectomy because all cases were treated with lumpectomy were alive, but in the group treated with mastectomy survival rate was 55% which indicates increasing awareness of patients and their on-time referral for getting a better response to treatment and reduce mortality. So, results showed that awareness of disease and the impact on the timely diagnosis and treatment does not exist in population. In this study, chance of survival in urban patient's twice more than rural patients and which is related to high awareness of disease, more diagnostic and therapeutic applications at cities in province and the possibility of further follow-up after treatment in urban people compared to rural people.

However, in studies conducted in different regions of Iran, five- year survival rate ranged from 58 to 62 percent was higher than this study (Babaee et al., 2005; Yaghmayee et al., 2007) and lower survival rate in this study compared to other countries and Iran could be due to lack of appropriate screening programs, proper awareness to patients for repeated examinations and information about disease risks.

In conclusion, the results of this study suggest that the overall 5-year survival rate in Ardebil province was lower than other places of Iran and most of countries in world and needs to be improved. Also, early diagnosis of breast cancer in Ardabil province and design proper and extended planning for cancer diagnosis and treatment is necessary and essential.

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