



## Causes of Breast Cancer in Women

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### ABSTRACT

Breast cancer is one of the most common cancers among women. Thus, it is very important to adopt efficient and effective diagnostic methods in the early stages. This should be taken into account as a key component of strategies aimed at promoting women's health as well as reducing the incidence and mortality rate of catching breast cancer. Moreover, identifying the risk factors and its control is very significant. In this review study, some risk factors of breast cancer have been reported by searching the databases so that a step can be taken to diminish the risk of this disease by educating and promoting women's awareness as well as recommending different methods of screening for breast cancer in the early stages, according to available guidelines as preventive measures.

**Key words:** Causes, Breast Cancer, Women

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### INTRODUCTION

Abnormal growth of breast tissue cells is called Breast Cancer which is divided into two main groups of Carcinoma in situ and invasive cancer [1]. Breast cancer is the most common and psychologically most effective cancer among women [2, 3]. Iranian women are affected by breast cancer a decade earlier than their counterparts in advanced countries. In Iran, more than 70,000 new cases of breast cancer are estimated every year [4-6]. Meanwhile, breast cancer includes one-third of cancer cases in women [7]. Approximately, one million cases of breast cancer have been detected in the world annually. Moreover, breast cancer is the cause of death in about 370 thousands of women. Breast cancer is the second most common cause of death after lung cancer [8-10]. This malignancy accounts

for 33% of all kinds of cancers in women and its prevalence in the general population in different countries of the world has been estimated to be between 8% and 10%. The incidence of breast cancer in Iran has been reported to be 31 per 100,000 women and the largest age group is related to the age range of 42 to 49 years old [11]. Breast cancer in young women has a more aggressive nature and a worse prognosis. In addition, lack of timely diagnosis leads to early death [8]. Several factors contribute to the incidence of breast cancer [12].

Risk factors for breast cancer include age, early menarche (less than age of 12 years), late menopause, first childbirth at the older ages (over 30 years), lack of pregnancy history, lack of breastfeeding, history of benign and malignant breast diseases, family history of breast cancer, especially in family members (mother, sister, daughter, father, or brother), hormone therapy for a long period of time, taking contraceptive pills for a long time, alcohol consumption and lack of

physical activity, frequent contact with radiation between puberty and age of 30 years, smoking and genetic factors [13-16]. Since Breast Cancer is one of the most common and significant cancers in women, it is very important to study the related causes as recognizing its risk factors can be helpful in its diagnosis, prevention and early screening. Therefore, the present study aimed to review the risk factors for breast cancer in women.

## MATERIALS AND METHODS

This paper has been set as a review article in which research papers, Google scholar search engine information, NCI cancer database and available books in this field have been analyzed.

## RESULTS

The components affecting breast cancer are highly diverse. Known risk factors are very widespread and some of them are explained below.

### Age and sex

Female sex and increasing age are the most important risk factors for breast cancer as the incidence is higher in women after age of 35 years and reaches a constant level after the age of 80 [17].

It is also significantly increased in the 30's to the 70's periods of life and then it is meaningfully reduced [18]. The age range of patients with breast cancer in the study by Keshti *et al.*, was calculated between 35 to 54 years old [19]. The noted age was evaluated as 45. 7 years in Nepal study [20] while it was calculated to be between 48 and 47 years in a study carried out by Yavari in Tehran [21].

### Family history

Family history of breast cancer especially in first-degree relatives (mother, sister, daughter, father and brother), raises the chance of having the disease. The risk of catching the disease is increased by 1.8 times in case of having one first-degree relative. It is also augmented up to 3 times by having a two first-degree relatives and the risk is incremented up to 4 times in case of having three first-degree relatives [22].

### Genetic predisposition

10-50% of breast cancer in women results from inherited mutations of BRCA1 and BRCA2 genes [23].

### Early menarche and late menopause

Menarche before age 12 and menopause after 55 years cause increase in the risk of cancer due to the prolonged exposure to sex hormones [24].

### Fertility history

Nulliparity and pregnancy after age 30 are some of the risk factors [24].

### Factors related to lifestyle

#### *Obesity*

Overweight, obesity and central obesity are associated with the risk of breast cancer before and after menopause [25]. Breast adipose tissue is a source of increasing the tumor cells. Adipocytes or its producing cells may provide key factors that are effective in the development and invasion of tumor cells.

Additionally, excessive estrogen in adipose tissue and fatty cytokines can be associated with the physiopathology of inflammatory process and the presence of leptin in adipose tissue [26].

#### *Physical activity*

The American Cancer Society recommends 45-60 minutes of voluntary physical activity for 5 days per week or more to reduce the risk of breast cancer. The risk of death in women who had physical activity was lower by 24-67 percent than those who did not have any activity. Moreover; the risk of death after diagnosis of breast cancer is 50-53% lower in the mentioned women [27].

#### *Alcohol*

Alcohol consumption increases the risk of breast cancer by 7-12% per 10 grams of alcohol, because the level of estrogen and androgen is risen [28].

#### *Air pollution*

Risk of catching Breast cancer in women who are exposed to high levels of air pollution is two times more likely than the ones who live in areas without air contamination [29].

Consumption of food: high rate of food intake of vegetables, fruits, low-fat dairy products, beans, olive oil, vitamin A decline the chances of getting

breast cancer while all sorts of pickles, soy beans, soft drinks, sugar, tea and coffee, French fries, artificial juice, red meat, solid oil and sweets can increase the likelihood of developing such disease. It has also been observed that saffron extract, ginger, olive and broccoli have resulted in inhibition of the growth of cancer cells [30-32].

#### *Taking contraceptive pills*

The use of hormonal contraceptive methods more than 5 years increases the risk of breast cancer. Also, breastfeeding for one year or more decreases the risk of breast cancers lightly. A possible explanation may be inhibition of menstruation due to breastfeeding and thus this decreases the number of menstrual cycles. Another explanation is that structural changes that occur after breastfeeding lead to reduced risk [33].

### CONCLUSION

Since increase in age, early menarche and late menopause, family history of breast cancer, exercise and physical activity, obesity especially central obesity, using hormonal medication and food intake as well as alcohol consumption can be effective in breast cancer, a big step towards reducing and controlling the development of the disease can be taken by familiarizing the community with these risk factors in order to promote the health of the people.

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