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Breast Cancer: Myths and Realities

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ABSTRACT
The most prevalent invasive malignancy in women is breast cancer. Female cancer deaths are likewise primarily brought on by it. Out of 2.3 million women diagnosed 6,85,000 people worldwide died in 2020 as a result of breast cancer. Approximately half of breast cancers develop in women who have no identifiable breast cancer risk factor other than gender (female) and age (over 40 years). Ageing, obesity, drinking too much alcohol, radiation exposure history, family history of breast cancer, reproductive history (such as age at first pregnancy and age at first menstruation), smoking, and postmenopausal hormone therapy are some variables that raise the risk of breast cancer. Breast cancer can be prevented by avoiding excessive radiation exposure, breastfeeding for a longer period of time, and using hormones for a longer period of time.
KEYWORDS: *Breast Cancer, Chemotherapy, Invasive, Malignancy*

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INTRODUCTION

Breast cancer is a condition in which the breast's cells proliferate out of control. It is of various types. Which breast cells develop into cancer determine the type of breast cancer. Different areas of the breast might give rise to breast cancer. There are three basic parts of a breast: connective tissue, ducts, and lobules. The glands that generate milk are called lobules. Milk is carried by tubules called ducts to the nipple. The surrounding connective tissue, which is composed of fibrous and fatty tissue, holds everything in place. The ducts or lobules are where most breast cancers start. Blood and lymph vessels are two ways that breast cancer can travel outside of the breast. Breast cancer is referred described as having metastasized when it spreads to other bodily regions [1]. As the most prevalent disease diagnosed globally, female breast cancer has now surpassed lung cancer. In 2020, it is anticipated that 2,261,419 new cases will be detected in women worldwide [2]. With an age-adjusted death rate of 12.7 per 1,00,000 women and rate as high as 25.8 per 1,00,000 women, breast cancer is the most prevalent malignancy among Indian women [3]. Between 2020 and 2040, 2.5 million breast cancer deaths could be prevented globally if annual mortality decreases by 2.5% per year [4]. The goal of the Global Breast Cancer Initiative (GBCI), launched by the World Health Organization, is to lower down global breast cancer death rate by 2.5 percent yearly to avert 2.5 million breast cancer mortality between 2020 to 2040. By 2030, 25 percent of breast cancer deaths worldwide would be prevented, and by 2040, 40 percent of breast cancer deaths among women under the age of 70. The three pillars for attaining these goals are: comprehensive breast cancer management; health promotion for early detection; and timely diagnosis [4].

BREAST CANCER TYPES

There are many types of Cancer. These are:

1. **Ductal carcinoma in situ:** often known as DCIS, is a precancerous condition that begins in a milk duct but has not spread to the rest of the breast tissue. Any form of breast cancer that has expanded into the breast tissue around it is referred to as invasive (or infiltrating) breast cancer. About 1 in 5 newly diagnosed instances of breast cancer will be DUCTAL CARCINOMA IN SITU (DCIS). Most women who have breast cancer at this stage are curable. DCIS is sometimes known as stage 0 breast cancer or intraductal carcinoma. A non-invasive or early-stage breast cancer is DCIS. This indicates that the duct lining cells have transformed into cancer cells, but they have not penetrated the duct walls and disseminated into the adjacent breast tissue [5].
2. **Invasive Ductal Carcinoma (IDC):** The most prevalent kind of breast cancer, invasive ductal carcinoma (IDC), typically affects men and accounts for roughly 70–80% of all breast cancer diagnoses. It

is an invasive malignancy, meaning that abnormal cancer cells that started growing in the milk ducts have migrated into other breast tissue regions. Cancer cells that are invasive can also spread to different body regions. Additionally known as infiltrative ductal carcinoma [5].

3. **Lobular Carcinoma In Situ (LCIS):** The condition known as lobular carcinoma in situ (LCIS) is marked by the presence of abnormal cells in the breast lobules. The surrounding breast tissue has not been invaded by the abnormal cells outside of the lobules. LCIS seldom develops into invasive carcinoma and is very curable. However, if you have LCIS in one breast, you're more likely to get breast cancer in either breast.[6]
4. **Invasive Lobular Cancer (ILC):** The second most typical form of breast carcinoma is invasive lobular cancer. Invasive lobular carcinomas make up more than 10% of all invasive breast cancers. invasive breast cancer that starts in the breast's lobules (milk glands) and disperse to nearby healthy tissue. It can also spread to different body areas via the lymphatic and blood systems [5].
5. **Triple Negative Breast Cancer:** Nearly 10–20 percent of mammary gland cancer diagnoses are triple negative, which is more common in younger persons, African Americans, Hispanics, and/or those with a $BRCA_1$ gene mutation. Epidermal growth factor receptor 2(HER-2), Oestrogen receptors(ER), and Progesterone receptors have not been detected in these breast cancer cells(PR) [6].
6. **Inflammatory Breast Cancer (IBC):** IBC is a quickly-growing, aggressive form of breast cancer where cancer cells have invaded the breast's surface and lymphatic vessels. It frequently results in no clear tumour or lump that is localised in the breast and can be felt. However, symptoms start to show up when the breast cancer cells obstruct the lymph vessels [5].
7. **Metaststic Breast Cancer :** Stage 4 breast cancer also refers to metastatic breast cancer. Other bodily areas have been affected by the cancer's spread. Typically, this involves the brain, bones, liver, lungs, or liver [6].

OTHER TYPE OF CARCINOMAS

8. **Paget Breast or Nipple Disease:** It is a rare kind of cancer that usually affects the skin surrounding the nipple and the areola. The majority of persons who suffers from it also have one or more tumours in the same breast, which are typically either invasive breast cancer or ductal carcinoma in situ (1-3). The initial signs of Paget disease are usually misdiagnosed because they are easily mistaken for more widespread skin disorders that affect the nipple[7].The prognosis for Paget disease, like all breast cancers, relies on a number of variables, such as the presence of invasive cancer and its spread to surrounding lymph nodes [8].
9. **Medullary Carcinoma:** Between 3 and 5 percent of all breast cancer types are medullary carcinomas. While the tumour frequently appears on a mammography, it is not always felt as a bump. It can occasionally resemble a spongy breast tissue alteration [8].
10. **Tubular Carcinoma:** Roughly contributing to only 2% of all breast cancer diagnoses, it can be identified by its characteristic tubular form by using a microscope. A mammogram is often used to detect a cluster of cells, which seems more like a spongy region of breast tissue than a lump. It is a particular kind of breast cancer which typically affects females over the age of 50 and responds favorably to hormone therapy.

11. Mucinous Carcinoma (Colloid): Between 1 and 2 percent of all breast cancer cases are mucinous carcinomas. Mucus production and poorly defined cells are the major characteristics that set them apart from one another. It typically has a good prognosis as well [8].

RISK FACTORS OF BREAST CANCER

Studies have indicated that a number of factors contribute to the risk for breast cancer. Being a woman and getting older are the two biggest risk factors. Women 50 years of age or older are the ones most likely to develop breast cancer [9].

Even if a woman is unaware of any other risk factors, she may still develop breast cancer. Not all risk factors have the same effects, and having one does not guarantee that you will develop the disease. . Although the majority of women have certain risk factors, breast cancer seldom affects them. If you have breast cancer risk factors, speak to your doctor about breast cancer screening options and strategies to reduce your risk.

- **Age:** Age raises the risk of breast cancer. The likelihood of acquiring breast cancer in the following ten years at age 20 is 0.06 percent. This percentage increases to 3.84 percent by the age of 70 [10].
- **Genetics** Individuals with specific mutations in the $BRCA_1$ and $BRCA_2$ genes are at an elevated risk of developing breast cancer and ovarian cancer. These genes are carried by people [11].
- **Breast cancer history or breast lumps:** Breast cancer recurrence is more likely in those who have already had it than in those who have never had it. Some noncancerous breast lumps raise the possibility of eventually getting the disease. Atypical ductal hyperplasia and in situ lobular cancer are two examples [9].
- **Dense breast tissue:** Breast cancer diagnoses are more frequently linked to dense breast tissue [10].
- **Exposure to oestrogen:** The risk of breast cancer appears to rise with prolonged oestrogen exposure. This exposure may result in early menstruation or a later onset of menopause. Estrogen levels in the body are higher in this period [9].

- **Breastfeeding:** Breastfeeding appears to lower the risk of getting breast cancer, especially when done for more than a year. The reduction in oestrogen exposure that occurs after pregnancy and breastfeeding may be the cause of this [9].
- **Body weight:** Obesity after menopause may raise the risk of getting breast cancer, presumably because of elevated oestrogen levels. Trusted Source High sugar consumption might also play a role [10].
- **Drinking alcohol:** High alcohol consumption on a regular basis might contribute to breast cancer development. The National Cancer Institute (NCI) reports that research repeatedly shows that women who drink alcohol are more likely to develop breast cancer. Additionally, women who drink less run a higher risk than those who consume moderate to large amounts of alcohol [9].
- **Exposure to radiation:** Radiation therapy for one type of cancer may make breast cancer more likely to occur later in life. And according to the ACS, research has revealed a link between estrogen-progesterone therapy, a type of hormone replacement therapy, and a higher risk of breast cancer[10].
- **Race:** According to the Center for Disease Control and Prevention(CDC), the death rate for breast cancer is approximately 40% more among Black females than it is for White females [9].

SYMPTOMS OF BREAST CANCER

Generally the breast cancer symptoms include:

- A lump or thickening in the breast
- A change in the size, shape, or appearance of a breast
- Dimpling, redness, pitting, or another change in the skin
- A change in the appearance of the nipple or a change in the skin around the nipple (areola)
- An abnormal discharge from the nipple [12]

Breast lumps can appear for a variety of reasons, the majority of which are not malignancy. 90 percent or more breast tumours are not malignant. Infections and benign lumps like fibroadenomas and cysts are examples of non-cancerous breast abnormalities [14].

DIAGNOSIS

- Breast examination
- Imaging tests like mammogram, MRI, ultrasound
- Biopsy[12]

BREAST CANCER STAGES

The TNM approach for staging breast cancer considers the size of the tumour (T), whether it has progressed to axillary lymphnodes(N), and whether it has metastasized(M). A worse prognosis is associated with bigger size, nodal dissemination, and metastasis.

Stage 0 is a pre-cancerous or marker condition, either ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS).

Stages 1–3 are within the breast or regional lymph nodes.

Stage 4 is 'metastatic' cancer that has a less favorable prognosis since it has spread beyond the breast and regional lymph nodes [13].

TREATMENT

1. **Surgery:** The kind of surgery performed, if any, will depend on the patient's preferences and the diagnosis. surgical procedures include:

- **Lumpectomy:** This procedure entails removing the tumour along with some nearby healthy tissue. A lumpectomy can aid in limiting the growth of cancer. If the tumour is tiny and simple to remove from the surrounding tissue, this might be a possibility [14].
- **Mastectomy:** Simple mastectomy procedures include the removal of the breast's lobules, ducts, fatty tissue, nipple, areola, and some skin. Furthermore, a surgeon may remove some types of lymph nodes and chest wall muscle.[15].
- **Sentinel node biopsy:**Breast cancer can spread in many regions of the body through the lymphatic system if it extends to the sentinel lymph nodes. Usually, further nodes do not need to be removed if the doctor finds no malignancy in the sentinel nodes [15].
- **Axillary lymph node dissection**: A doctor may advise the removal of several lymph nodes in the armpit if sentinel nodes are found to contain cancer cells. This may stop the spread of cancer[14].
- **Reconstruction:** A surgeon can restore a breast's natural appearance after a mastectomy. A person may find it easier to handle the psychological impacts of breast removal in this way. During the mastectomy or afterward, the surgeon has the option to reconstruct the breast. They might apply tissue from another body part or a breast implant [14].

2. **Radiation therapy:** Around one month following surgery, a patient may receive radiation therapy. It entails carefully aiming radiation dosages at the tumour to eradicate any residual cancer cells[14].

3. Chemotherapy

In order to eliminate cancer cells, a doctor may prescribe cytotoxic chemotherapy drugs if there is a high danger of recurrence or expansion. Adjuvant chemotherapy is the term used by doctors to describe chemotherapy given after surgery. Prior to surgery, a doctor may suggest chemotherapy to reduce the size of the tumour and make it easier to remove. Neoadjuvant chemotherapy is what this is known as[16].

4. **Hormone-blocking therapy** is used by doctors to stop hormone-sensitive breast cancers from coming back after treatment. Progesterone and oestrogen receptor positive malignancies may benefit from the therapy. Medical personnel often inject it after surgery, but they may do so earlier to reduce the tumour size[14].

Those who are unsuitable for surgery, chemotherapy, or radiotherapy may have no choice but to undergo hormone-blocking therapy. This kind of medical treatment may affect fertility.

Biological treatment

Specific forms of breast cancer can be wiped out by targeted medications. Examples are:

- ✧ Trastuzumab(Herceptin)
- ✧ Lapatinib(Tykerb)
- ✧ Bevacizumab(Avastin)

Breast cancer treatment may have serious consequences. When selecting a course of treatment, talk to your doctor about any possible downsides and look into mitigating those effects[15].

PREVENTION OF BREAST CANCER

Breast cancer cannot be prevented. A person can, however, take precautions to dramatically lower its risk. These consist of:

- ➢ restricting alcohol intake [17]
- ➢ consuming a lot of fresh fruit and vegetables as part of a healthy diet [18]
- ➢ obtaining sufficient exercise [19]
- ➢ keeping your body mass index at a healthy level [20]

A patient who is thinking about adopting hormone replacement treatment after menopause might want to talk to a medical expert about this. Preventive surgery is an additional choice for those with a high risk of developing breast cancer.

COPING WITH THE DIAGNOSIS

It might be stressful and terrifying to receive a breast cancer diagnosis. It is normal to have anxiety, sadness, and future-related anxieties. You must decide on vital treatment options. Each person develops a unique coping mechanism for dealing with these problems.

TO UNDERSTAND BETTER YOU CAN

Consult your doctor to learn more about the kind, stage, and available treatments for your particular form of cancer. You'll feel more secure when choosing a course of therapy if you are more informed about your cancer and your alternatives.

- ➢ Obtain the opinions of other breast cancer survivors. Talking to people who are in a similar circumstance to you might be beneficial and uplifting.
- ➢ Ask your doctor about local support groups; you may also look them up online.
- ➢ Share your feelings with a friend or family member who will listen well so that you can talk about your feelings. To find a counsellor who works with cancer patients and survivors, ask your doctor for a recommendation.
- ➢ Ask your friends and relatives for help.
- ➢ Maintaining closeness with your husband is important while you are receiving cancer treatment from your friends and family.
- ➢ Breasts in women are linked to sexuality and femininity. Your confidence and self-image may be affected by breast cancer. Share your fears and feelings with your husband.

CONCLUSION

Breast cancer is the most prevalent kind of cancer in the world and the primary cause why women die from cancer. According to the data that is currently available, incidence and mortality have been rising in low-resource countries while decreasing in high-resource countries. Changes in risk factor profiles and disparities in access to breast cancer early detection and treatment are likely to be to blame for this pattern. At the moment, cancer prevention is essential in the fight against the illness. Breast cancer incidence may be dramatically decreased through behaviour change and increased knowledge among women of this

disease. There should be proper screening for breast cancer so that early diagnosis can be made and mortality rate can be reduced.

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