

Breast cancer

Introduction:

Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of out-of-control growth of abnormal cells. Cancer cell growth is different from normal cell growth. Instead of dying, cancer cells continue to grow and form new, abnormal cells. Cancer cells can also invade (grow into) other tissues, something that normal cells cannot do. Growing out of control and invading other tissues are what makes a cell a cancer cell.

Definition of breast cancer:

Breast cancer is a malignant tumor that starts in the cells of the breast.

Incidence of breast cancer:

Worldwide, breast cancer comprises 22.9 % of all cancers. Breast cancer is more than 100 times more common in women than breast cancer in men, although males tend to have poorer outcomes due to delays in diagnosis. The annual crude incidence of breast cancer is (31.1/100,000) compared with other female's cancer in all ages it come in the first rank.

Types of breast cancers:

- 1) Ductal carcinoma:**
- 2) Lobular carcinoma**
- 3) Invasive (or infiltrating) ductal carcinoma**

This is the most common type of breast cancer. Invasive (or infiltrating) ductal carcinoma (IDC) starts in a milk duct of the breast, breaks through the wall of the duct, and grows into the fatty tissue of the breast. At this point, it may be able to spread (metastasize) to other parts of the body through the lymphatic system and bloodstream. About 8 of 10 invasive breast cancers are infiltrating ductal carcinomas.

4) Invasive (or infiltrating) lobular carcinoma

Invasive lobular carcinoma (ILC) starts in the milk-producing glands (lobules). Like IDC, it can spread (metastasize) to other parts of the body. About 1 invasive breast cancer in 10 is an ILC. Invasive lobular carcinoma may be harder to detect by a mammogram than invasive ductal carcinoma.

Stages of breast cancer:

Breast cancer can be divided into four number stages:

Stage 1: The cancer (lump) is smaller than, or equal to, 2cm and has not spread to the lymph nodes in the armpit.

Stage 2: is divided into two stages:

Stage 2A – Either the lump is smaller than 2cm and has spread to lymph nodes in the armpit **or** it's bigger than 2cm (but under 5cm) and hasn't spread to the lymph nodes **or** the cancer can't be found in the breast but is in the lymph nodes in the armpit.

Stage 2B – Either the lump is smaller than 5cm and has spread to the lymph nodes in the armpit **or** it's bigger than 5cm but hasn't spread to the lymph nodes in the armpit.

Stage 3 –the lump is bigger than 5cm and has spread to the lymph nodes.

Stage 4 – The cancer has spread to other parts of the body such as the bones, liver or lungs. This is called secondary or metastatic breast cancer.

Risk factors for breast cancer:

I) Risk factors cannot be changed

1) Being a Woman

Just being a woman is the biggest risk factor for developing breast cancer.

2) Aging

The risk of developing breast cancer increases as get older.

3) Genetic risk factors

About 5% to 10% of breast cancer cases are thought to be hereditary,

4) Family history of breast cancer

Breast cancer risk is higher among women whose close blood relatives have this disease.

5) Personal history of breast cancer

A woman with cancer in one breast has a 3- to 4-fold increased risk of developing a new cancer in the other breast or in another part of the same breast. This is different from a recurrence (return) of the first cancer.

6) Race and ethnicity

Overall, white women are slightly more likely to develop breast cancer than are African-American women

7) Dense breast tissue

Breasts are made up of fatty tissue, fibrous tissue, and glandular tissue. Someone is said to have dense breast tissue (as seen on a mammogram) when they have more glandular and fibrous tissue and less fatty tissue. Women with dense breasts have a higher risk of breast cancer than women with less dense breasts.

8) Certain benign breast conditions

Women diagnosed with certain benign breast conditions might have an increased risk of breast cancer.

9) Menstrual periods

Women who have had more menstrual cycles because they started menstruating early (before age 12) and/or went through menopause later (after age 55) have a slightly higher risk of breast cancer.

10) Previous chest radiation

Women who, as children or young adults, had radiation therapy to the chest area as treatment for another cancer have a significantly increased risk for breast cancer.

II) Risk factors can be changed

1) Having children

Women who have had no children or who had their first child after age 30 have a slightly higher breast cancer risk. Having many pregnancies and becoming pregnant at a young age reduce breast cancer risk.

2) Birth control

Oral contraceptives: Studies have found that women using oral contraceptives (birth control pills) have a slightly greater risk of breast cancer than women who have never used them.

Depot-medroxyprogesterone acetate Women currently using DMPA seem to have an increase in risk,

3) Hormone therapy after menopause

Hormone therapy with estrogen (often combined with progesterone) has been used for many years to help relieve symptoms of menopause and to help prevent osteoporosis.

4) Breastfeeding

Some studies suggest that breastfeeding may slightly lower breast cancer risk, especially if it is continued for 1½ to 2 years.

5) Drinking alcohol

The use of alcohol is clearly linked to an increased risk of developing breast cancer.

6) Being overweight or obese

Being overweight or obese after menopause increases breast cancer risk.

7) Physical activity

Evidence is growing that physical activity in the form of exercise reduces breast cancer risk.

Signs and symptoms of breast cancer:

The signs and symptoms of breast cancer include:

- **A lump in the breast –**

- **A lump in the armpit (axilla)**

Sometimes small, hard lumps in the armpit may be a sign that breast cancer has spread to the lymph nodes. Although these lumps are often painless, they may be tender.

- A change in the size, shape, or contour of the breast

- **Skin changes**

- The skin of the breast may become dimpled or puckered. A thickening and dimpling of the skin is sometimes called orange peel skin.
- Redness, swelling and increased warmth (signs that look like an infection) may be a sign of inflammatory breast cancer.
- Itching of the breast or nipple may be a sign of inflammatory breast cancer. It is often not relieved by ointments, creams or other medications.

- **Nipple changes**

- Some people's nipples are always pointed inward (inverted).
- Discharge from the nipples can be caused by many conditions, most of which are non-cancerous (benign).
- Discharge from one nipple may be a sign of breast cancer, especially if it appears without squeezing the nipple (is spontaneous) and is blood-stained.
- Crusting, ulcers or scaling on the nipple may be a sign of some rare types of breast cancer, such as Paget disease of the nipple.

Late signs and symptoms:

Late signs and symptoms occur as the cancer grows larger or spreads to other parts of the body, including other organs.

- Bone pain
- Nausea
- Loss of appetite

- Weight loss
- Jaundice
- Buildup of fluid around the lungs (pleural effusion)
 - Shortness of breath
 - Cough
- Headache
- Double vision
- Muscle weakness

Diagnosis of breast cancer:

- 1- Medical history and physical exam
- 2- Imaging tests used to evaluate breast disease
 - a- Diagnostic mammograms
 - b- Magnetic resonance imaging (MRI) of the breast
 - c- Breast ultrasound
 - d- Ductogram
- 3- Biopsy

Breast cancer prevention:

A) Life style improvement

The person can lower his risk of breast cancer by changing those risk factors that can be changed as the following:

1. Avoid becoming overweight
2. Eat healthy to avoid tipping the scale
3. Keep physically active
4. Drink little or no alcohol
5. Don't smoke
6. Breast-feed babies for as long as possible. Women who breast-feed their babies for at least a year in total have a reduced risk of developing breast cancer later.

7. Avoid hormone replacement therapy.
8. Get regular breast cancer screenings.

B) Early detection of breast cancer:

- 1) Screening mammograms
- 2) Clinical breast exam
- 3) Breast awareness and self-exam
- 4) Magnetic resonance imaging (MRI)

Treatment of breast cancer:

Surgery, radiotherapy, hormonal therapy and chemotherapy may be used to treat breast cancer. Usually, more than one type of treatment is used.

1) Breast cancer surgery

Operations used to treat breast cancer include:

- **Removing the breast cancer (lumpectomy).** Lumpectomy is typically reserved for smaller tumors.
- **Removing the entire breast (mastectomy).** Mastectomy is surgery to remove all of the breast tissue. Most mastectomy procedures remove all of the breast tissue — the lobules, ducts, fatty tissue and some skin, including the nipple and areola (simple mastectomy). In a skin-sparing mastectomy, the skin over the breast is left intact to improve reconstruction and appearance.
- **Removing a limited number of lymph nodes.** To determine whether cancer has spread to the lymph nodes, the surgeon will discuss with his patient the role of removing the lymph nodes that receive the lymph drainage from tumor. If no cancer is found in those lymph nodes, the chance of finding cancer in any of the remaining lymph nodes is small and no other nodes need to be removed.

- **Removing several lymph nodes (axillary lymph node dissection).** If cancer is found in the sentinel node, the surgeon will discuss with patient the role of removing additional lymph nodes in her armpit.
- **Removing both breasts.** Some women with cancer in one breast may choose to have their other (healthy) breast removed (contralateral prophylactic mastectomy) if they have a very increased risk of cancer in the other breast.

2) Radiation therapy

Radiation therapy uses high-powered beams of energy, such as X-rays, to kill cancer cells. External beam radiation is commonly used after lumpectomy for early-stage breast cancer. Doctors may also recommend radiation therapy after mastectomy for larger breast cancers or cancers that have spread to the lymph nodes.

Side effects of radiation therapy include fatigue and a red, sunburn-like rash where the radiation is aimed. Breast tissue may also appear swollen or more firm. Rarely, more-serious problems may occur, such as damage to the heart or lungs or, very rarely, second cancers in the treated area.

3) Chemotherapy

Chemotherapy uses drugs to destroy cancer cells. If the cancer has a high risk of returning or spreading to another part of the body.

Chemotherapy is also used in women whose cancer has already spread to other parts of the body.

4) Hormone therapy

Hormone therapy — perhaps more properly termed hormone-blocking therapy — is often used to treat breast cancers that are sensitive to hormones. Hormone therapy can be used after surgery or other treatments to decrease the chance of cancer returning. If the cancer has already spread, hormone therapy may shrink and control it.