

A REVIEW ON BREAST CANCER**Dr. Krupaliba Chudasama***

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Accepted on 24 June 2015***Correspondence for****Author****Dr. Krupaliba Chudasama**Department of Pharmacy
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Bangalore-560035.**ABSTRACT**

Breast cancer is the most common cancer in women worldwide. It is also the principle cause of death from cancer among women globally. Despite the high incidence rates, in Western countries, 89% of women diagnosed with breast cancer are still alive 5 years after their diagnosis, which is due to detection and treatment. The incidence of breast cancer is much lower in India as compared to that in the western countries. Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. The disease occurs almost entirely in women, but men can get it, too. A breast cancer risk factor is anything that makes it more

likely you'll get breast cancer.^[1] But having one or even several breast cancer risk factors doesn't necessarily mean you'll develop breast cancer. Many women who develop breast cancer have no known risk factors other than simply being women.^[1] Early breast cancer usually doesn't cause symptoms. But as the tumor grows, it can change how the breast looks or feels. Tests that examine the breasts are used to detect (find) and diagnose breast cancer. Check with your doctor if you notice any changes in your breasts.^[1]

KEYWORDS: Breast cancer, malignant, metastasize.**INTRODUCTION**

Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body.^[1] The breast is made up of glands called lobules that can make milk and thin tubes called ducts that carry the milk from the lobules to the nipple. Breast tissue also contains fat and connective tissue, lymph nodes, and blood vessels.^[2]

The most common type of breast cancer is ductal carcinoma, which begins in the cells of the ducts. Breast cancer can also begin in the cells of the lobules and in other tissues in the breast. Invasive breast cancer is breast cancer that has spread from where it began in the ducts or lobules to surrounding tissue.^[2]

In the U.S., breast cancer is the second most common cancer in women after skin cancer. It can occur in both men and women, but it is very rare in men. Each year there are about 2,300 new cases of breast cancer in men and about 230,000 new cases in women.^[2]

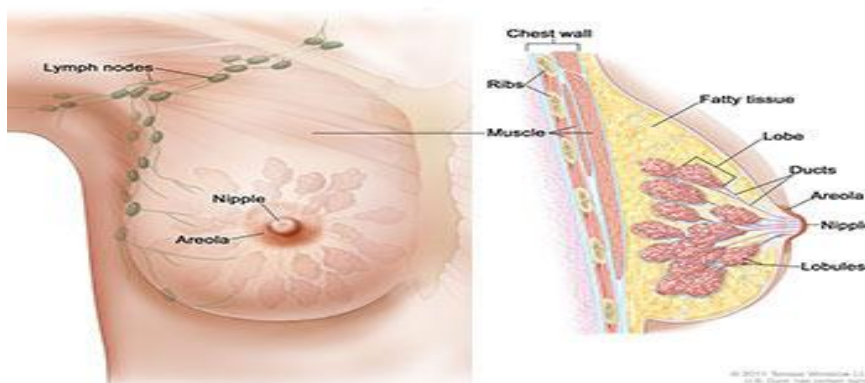


Fig: Anatomy of the female breast. The nipple, areola, lymph nodes, lobes, lobules, ducts, and other parts of the breast are shown.^[2]

EPIDEMIOLOGY

Breast cancer is the most common cancer in women both in the developed and less developed world. It is estimated that worldwide over 508 000 women died in 2011 due to breast cancer (Global Health Estimates, WHO 2013). Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries (GLOBOCAN 2008).^[3]

Incidence rates vary greatly worldwide from 19.3 per 100,000 women in Eastern Africa to 89.7 per 100,000 women in Western Europe. In most of the developing regions the incidence rates are below 40 per 100,000 (GLOBOCAN 2008). The lowest incidence rates are found in most African countries but here breast cancer incidence rates are also increasing.^[3]

Breast cancer survival rates vary greatly worldwide, ranging from 80% or over in North America, Sweden and Japan to around 60% in middle-income countries and below 40% in low-income countries (Coleman et al., 2008). The low survival rates in less developed countries can be explained mainly by the lack of early detection programmes, resulting in a

high proportion of women presenting with late-stage disease, as well as by the lack of adequate diagnosis and treatment facilities.^[3]

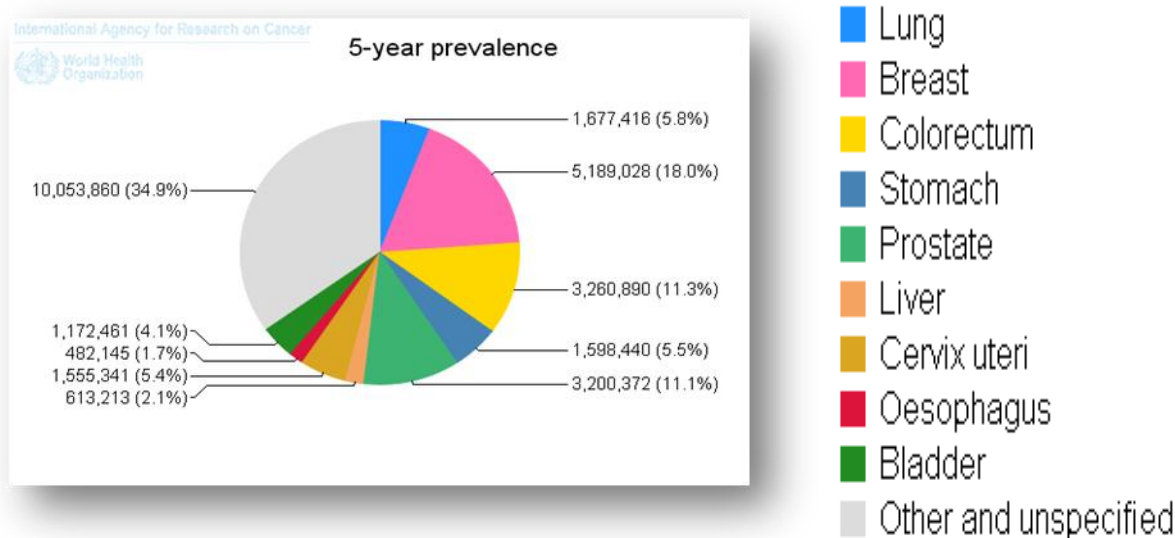


Fig: Prevalence of Breast cancer worldwide

Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new cases diagnosed in 2012. Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new cases diagnosed in 2012 (second most common cancer overall). This represents about 12% of all new cancer cases and 25% of all cancers in women.

Breast cancer is hormone related, and the factors that modify the risk of this cancer when diagnosed premenopausally and when diagnosed (much more commonly) postmenopausally are not the same.^[4]

SYMPTOMS.^[5]

Every person should know the symptoms and signs of breast cancer, and any time an abnormality is discovered, it should be investigated by a healthcare professional. Most people who have breast cancer symptoms and signs will initially notice only one or two, and the presence of these symptoms and signs do not automatically mean that you have breast cancer.

- Nipple tenderness or a lump or thickening in or near the breast or underarm area.
- A change in the skin texture or an enlargement of pores in the skin of the breast. (some describe this as similar to an orange peel's texture)

- A lump in the breast (It's important to remember that all lumps should be investigated by a healthcare professional, but not all lumps are cancerous.)
- Any unexplained change in the size or shape of the breast.
- Dimpling anywhere on the breast.
- Unexplained swelling of the breast (especially if on one side only).
- Unexplained shrinkage of the breast (especially if on one side only).
- Recent asymmetry of the breasts (Although it is common for women to have one breast that is slightly larger than the other, if the onset of asymmetry is recent, it should be checked.)
- Nipple that is turned slightly inward or inverted.
- Skin of the breast, areola, or nipple that becomes scaly, red, or swollen or may have ridges or pitting resembling the skin of an orange.
- It is also important to note that a milky discharge that is present when a woman is not breastfeeding should be checked by her doctor, although it is not linked with breast cancer.

BREAST EXAMINATION

Self Breast Examination.^[6]

Adult women of all ages are encouraged to perform breast self-exams at least once a month. While mammograms can help you to detect cancer before you can feel a lump, breast self-exams help you to be familiar with how your breasts look and feel so you can alert your healthcare professional if there are any changes.

1) IN THE SHOWER

Using the pads of your fingers, move around your entire breast in a circular pattern moving from the outside to the center, checking the entire breast and armpit area. Check both breasts each month feeling for any lump, thickening, or hardened knot. Notice any changes and get lumps evaluated by your healthcare provider.

2) IN FRONT OF A MIRROR

Visually inspect your breasts with your arms at your sides. Next, raise your arms high overhead.

Look for any changes in the contour, any swelling, or dimpling of the skin, or changes in the nipples. Next, rest your palms on your hips and press firmly to flex your chest muscles. Left

and right breasts will not exactly match—few women's breasts do, so look for any dimpling, puckering, or changes, particularly on one side.

3) LYING DOWN

When lying down, the breast tissue spreads out evenly along the chest wall. Place a pillow under your right shoulder and your right arm behind your head. Using your left hand, move the pads of your fingers around your right breast gently in small circular motions covering the entire breast area and armpit.

Use light, medium, and firm pressure. Squeeze the nipple; check for discharge and lumps. Repeat these steps for your left breast.

Clinical Breast Examination

During a clinical breast exam, your healthcare provider checks your breasts' appearance. You may be asked to raise your arms over your head, let them hang by your sides, or press your hands against your hips. These postures allow your healthcare provider to look for differences in size or shape between your breasts. The skin covering your breasts is checked for any rash, dimpling, or other abnormal signs. Your nipples may be checked to see if fluid is expressed when lightly squeezed.

A Manual Check for Unusual Texture or Lumps

Using the pads of the fingers, your healthcare provider checks your entire breast, underarm, and collarbone area for any lumps or abnormalities. It is worth noting that some women have breast tissue that appears to be full of tiny fibrous bumps or ridges throughout the breast tissue, known as fibrocystic breasts. Overall lumpy tissue is something your provider will want to note but is unrelated to cancer.

A suspicious lump –the type your physician is checking for– is generally about the size of a pea before anyone can feel it in the breast tissue. The manual exam is done on one side and then the other. Your healthcare provider will also check the lymph nodes near the breast to see if they are enlarged.

An Assessment of Any Suspicious Area

If a lump is discovered, your healthcare provider will note its size, shape, and texture. He or she will also check to see if the lump moves easily. Benign lumps often feel different from

cancerous ones, but any lump found will likely need to be examined with further diagnostic measures.

It may be helpful to know that lumps that appear soft, smooth, round, and movable are likely to be either benign tumors or cysts. A lump that is hard and oddly-shaped and feels firmly attached within the breast is more likely to be cancer, but further tests are needed to diagnose the problem.

The Value of Clinical Breast Exams

Clinical Breast exams are an important part of early detection. Although most lumps are discovered through breast self-exams, an experienced professional may notice a suspicious place that fails to register as a warning in the patient's mind.

SCREENING TEST.^[7]

Mammogram

A mammogram is an x-ray that allows a qualified specialist to examine the breast tissue for any suspicious areas. The breast is exposed to a small dose of ionizing radiation that produces an image of the breast tissue. Mammograms can often show a breast lump before it can be felt. They also can show tiny clusters of calcium called microcalcifications. Lumps or specks can be caused by cancer, fatty cells, or other conditions like cysts. Further tests are needed to find out if abnormal cells are present.

Recommendations for all women:

- Women 40 and older should have mammograms every 1 or 2 years.
- Women who are younger than 40 and have risk factors for breast cancer should ask their healthcare professional whether mammograms are advisable and how often to have them.

When breast cancer is detected early (localized stage), the 5-year survival rate is **98%**.

NEW DRUGS APPROVED FOR BREAST CANCER BY FDA.^[8]

The individual drugs in the combinations are FDA-approved. However, the drug combinations themselves usually are not approved, although they are widely used.

Drugs Used to Prevent Breast Cancer

- Evista (Raloxifene Hydrochloride).
- Keoxifene (Raloxifene Hydrochloride).
- Nolvadex (Tamoxifen Citrate).

- Raloxifene Hydrochloride
- Tamoxifen Citrate

Drugs Used to Treat Breast Cancer

- Abitrexate (Methotrexate).
- Abraxane (Paclitaxel Albumin-stabilized Nanoparticle Formulation).
- Ado-Trastuzumab Emtansine.
- Adrucil (Fluorouracil).
- Afinitor (Everolimus).
- Anastrozole.
- Aredia (Pamidronate Disodium).
- Arimidex (Anastrozole).
- Aromasin (Exemestane).
- Capecitabine.
- Clafen (Cyclophosphamide).
- Cyclophosphamide.
- Cytosan (Cyclophosphamide).
- Docetaxel.
- Doxorubicin Hydrochloride.
- Efudex (Fluorouracil).
- Ellence (Epirubicin Hydrochloride).
- Epirubicin Hydrochloride.
- Eribulin Mesylate.
- Everolimus.
- Exemestane.
- Fareston (Toremifene).
- Faslodex (Fulvestrant).
- Femara (Letrozole).
- Fluoroplex (Fluorouracil).
- Fluorouracil.
- Folex (Methotrexate).
- Folex PFS (Methotrexate).
- Fulvestrant.
- Gemcitabine Hydrochloride.

- Gemzar (Gemcitabine Hydrochloride).
- Goserelin Acetate.
- Halaven (Eribulin Mesylate).
- Herceptin (Trastuzumab).
- Ibrance (Palbociclib).
- Ixabepilone.
- Ixempra (Ixabepilone).
- Kadcylla (Ado-Trastuzumab Emtansine).
- Lapatinib Ditosylate.
- Letrozole.
- Megace (Megestrol Acetate).
- Megestrol Acetate.
- Methotrexate.
- Methotrexate LPF (Methotrexate).
- Mexate (Methotrexate).
- Mexate-AQ (Methotrexate).
- Neosar (Cyclophosphamide).
- Nolvadex (Tamoxifen Citrate).
- Paclitaxel.
- Paclitaxel Albumin-stabilized Nanoparticle Formulation.
- Palbociclib.
- Pamidronate Disodium.
- Perjeta (Pertuzumab).
- Pertuzumab.
- Tamoxifen Citrate.
- Taxol (Paclitaxel).
- Taxoter (Docetaxel).
- Thiotepa.
- Toremifene.
- Trastuzumab.
- Tykerb (Lapatinib Ditosylate).
- Velban (Vinblastine Sulfate).
- Velsar (Vinblastine Sulfate).
- Vinblastine Sulfate.

- Xeloda (Capecitabine).
- Zoladex (Goserelin Acetate).

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