

**BREAST CANCER-AWARENESS REDUCES RISK IN FEMALE****Jyotsna A. Saonere***

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Breast cancer is mostly occurs at age of 40-75 years old female than the male. All around the world about 1.70millions of females are resulted with breast cancer and around 522,000 deaths. It is more common in developed countries than the developing ones. Breast cancer mostly occurs in cells from the lining of milk ducts and the

lobules that supply the ducts with milk. Symptoms of Breast cancer with a lump in the breast, dimpling of skin, change in shape of breast, fluide coming from nipple. Risk factor for development of breast cancer includes age, sex, obesity, lack of physical exercise, alcohol consumption, hormone replacement therapy during menopause, exposure to ionizing radiation, early age at first menstruation, and family history. Breast cancer can be controlled and increased the survival rate by early detection and diagnosis. By taking Preventive measures like screening every two years in women 50 to 74 years old, change in life style, physical exercise, restrict the alcohol intake, breast feeding, diet containing soya products and marine omega-3 polyunsaturated fatty acids appear to reduce the risk. The aim of this study is to create an awareness amongst the female regarding the breast cancer, it would be reduces the 50% risk of breast cancer by early detection, diagnosis, by changing life style, diet and regular exercise. In this paper types, sign and symptoms, diagnosis and prevention and treatment of breast cancer has been discussed in detail.

KEYWORDS: lump, menopause, screening, ionizing radiation etc.**INTRODUCTION**

Breast cancer occurs mostly in female at the age of 40-75 yrs. Worldwide It is the most common invasive cancer in females. All around the world breast cancer accouts for 16% of

all female cancers and 22.9% of invasive cancers in women and 18.2% of all cancer deaths including both males and females.^[1] rates of breast cancer are much higher in developed country as compared to developing ones. Breast cancer mainly occurs due to starts off in the inner lining of milk ducts or the lobules which supply them with milk.^[2]

^[7]The medications tamoxifen or raloxifene may be used in an effort to prevent breast cancer in those who are at high risk of developing it.^[4] Surgical removal of both breasts is another useful preventative measure in some high risk women.^[4] In those who have been diagnosed with cancer, a number of treatments may be used, including surgery, radiation therapy, chemotherapy, hormonal therapy and targeted therapy.^[2] Types of surgery vary from breast-conserving surgery to mastectomy.^[8, 9] Breast reconstruction may take place at the time of surgery or at a later date. In those in whom the cancer has spread to other parts of the body, treatments are mostly aimed at improving quality of life and comfort.^[9]

^[1]Signs of breast cancer may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, or a red scaly patch of skin.^[2] In those with distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin.^[3]

Risk factors for developing breast cancer include: female sex, obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, and family history.^[2, 4] About 5–10% of cases are due to genes inherited from a person's parents, including BRCA1 and BRCA2 among others. Breast cancer most commonly develops in cells from the lining of milk ducts and the lobules that supply the ducts with milk. Cancers developing from the ducts are known as ductal carcinomas, while those developing from lobules are known as lobular carcinomas.^[2] In addition, there are more than 18 other subtypes of breast cancer. Some cancers develop from pre-invasive lesions such as ductal carcinoma in situ.^[4] The diagnosis of breast cancer is confirmed by taking a biopsy of the concerning lump. Once the diagnosis is made, further tests are done to determine if the cancer has spread beyond the breast and which treatments it may respond to.^[2]

Brest cancer mainly occurs in following cases.^[3,4,5,6,7,8,9,10]

- 1) Elderly women.
- 2) Women in the richest countries live much longer than those in the poorest nations.

- 3) The different lifestyles and
- 4) Eating habits of females in rich and poor countries are also contributory factors for breast cancer.
- 5) Female sex.
- 6) Obesity.
- 7) Lack of physical exercise.
- 8) Drinking alcohol.
- 9) Hormone replacement therapy during menopause.
- 10) Ionizing radiation.
- 11) Early age at first menstruation.
- 12) Having children late or not at all.
- 13) Family history. About 5–10% of cases are due to genes inherited from a person's parents, including BRCA1 and BRCA2 among others.
- 14) Lack of breastfeeding.
- 15) Higher levels of certain hormones.

16) Certain jobs

women who worked at night prior to a first pregnancy had a higher risk of eventually developing breast cancer specially those that bring the human body into contact with possible carcinogens and endocrine disruptors are linked to a higher risk of developing breast cancer specially those that bring the human body into contact with possible carcinogens and endocrine disruptors are linked to a higher risk of developing breast cancer Examples female working in include bar/gambling, automotive plastics manufacturing, metal-working, food canning and agriculture. They reported their findings in the November 2012 issue of *Environmental Health*.

17) Cosmetic implants may undermine breast cancer survival

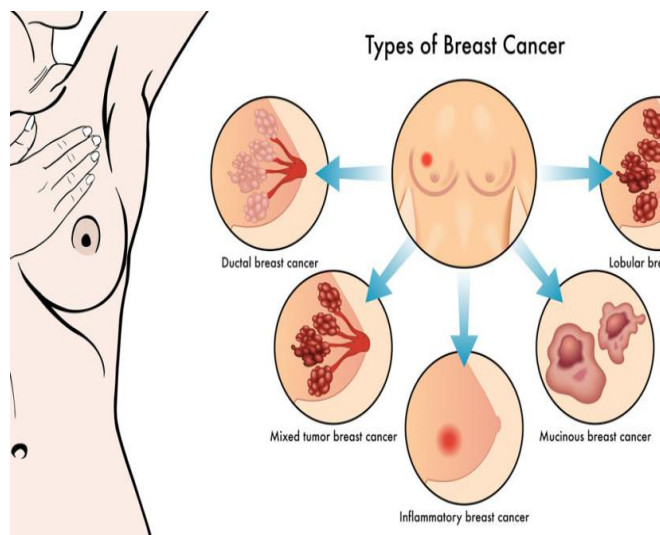
women who have cosmetic breast implants and develop breast cancer may have a higher risk of dying prematurely from the disease compared to other females, researchers from Canada reported in the *BMJ (British Medical Journal)* (May 2013 issue).

Anatomy of Breast Caancer- Female's breast consists of fat, connective tissue and thousands of lobules that is tiny glands which produce milk. Breastfeeding mother's milk goes through tiny ducts which is delivered through the nipple. Female breast consists of billions of

microscopic cells. These cells multiply and new cells are made to replace the ones that died. In breast cancer, the cells multiply uncontrollably.

Types of Breast Cancer

- 1) Ductal carcinoma-which is the most common type that begins in the lactiferous duct.
- 2) Lobular carcinoma- which is less common that begins in the lobules.



Source-www.google/imagres/breastcancer/bloomveda.com

Breast cancer classification depends on following:

➤ **Histopathology**

By its histological appearance breast cancer is classified. breast cancers are derived from the epithelium lining the ducts or lobules called as ductal or lobular carcinoma while *carcinoma* growth of low grade cancerous or precancerous cells within a particular tissue compartment such as the mammary duct without invasion of the surrounding tissue. In contrast to this *invasive carcinoma* does not confine to the initial tissue compartment.^[14]

➤ **Grade**

Grading of breast cancer depends upon the appearance of the breast cancer cells to the appearance of normal breast tissue. Normal breast become differentiated by their specific shapes and forms that reflect their function as part of that organ however cancerous cells lose that differentiation.

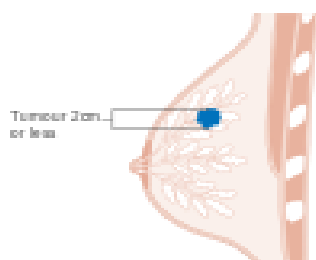
Pathologists describe as low grade the cells which is well differentiated while intermediate grade which is moderately differentiated and high grade which is poorly.

➤ **Stage**

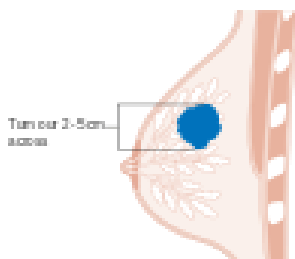
Stages of breast cancer is determined by TNM system which is based on the size of the tumor (**T**) whether or not the tumor has spread to the lymph nodes (**N**) in the armpits and whether the tumor has metastasized (**M**).

The main stages are:

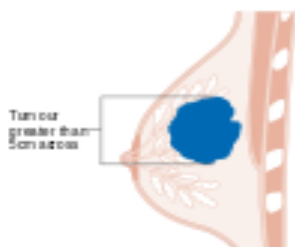
- ❖ Stage 0 – which is a pre-cancerous or marker stage either ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS).
- ❖ Stages 1–3 –which are within the breast or regional lymph nodes.
- ❖ Stage 4 -which is 'metastatic' cancer that has a less favorable prognosis which is escaped into the blood stream.



Stage T1 breast cancer



Stage T2 breast cancer



Stage T3 breast cancer

Where available, imaging studies may be employed as part of the staging process in select cases to look for signs of metastatic cancer. However, in cases of breast cancer with low risk for metastasis, the risks associated with PET scans, CT scans, or bone scans outweigh the

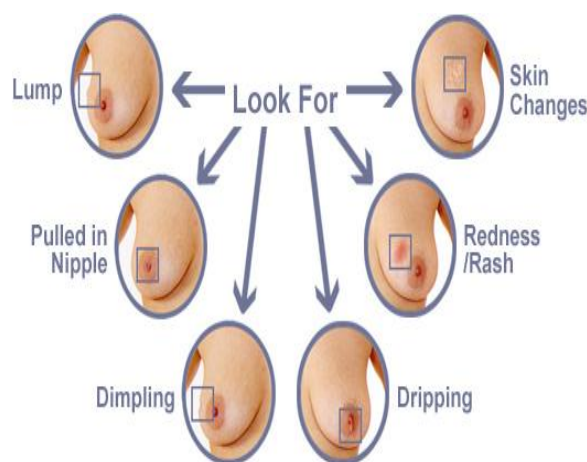
possible benefits, as these procedures expose the patient to a substantial amount of potentially dangerous ionizing radiation.^[15,16]

- **Receptor status**

Breast cancer cells have receptors on their surface, cytoplasm and nucleus. Hormones bind to these receptors and which causes changes in the cell. Breast cancer cells mainly having three important receptors: ER -estrogen receptor, PR- progesterone receptor (PR), and HER2.^[17,18,19]

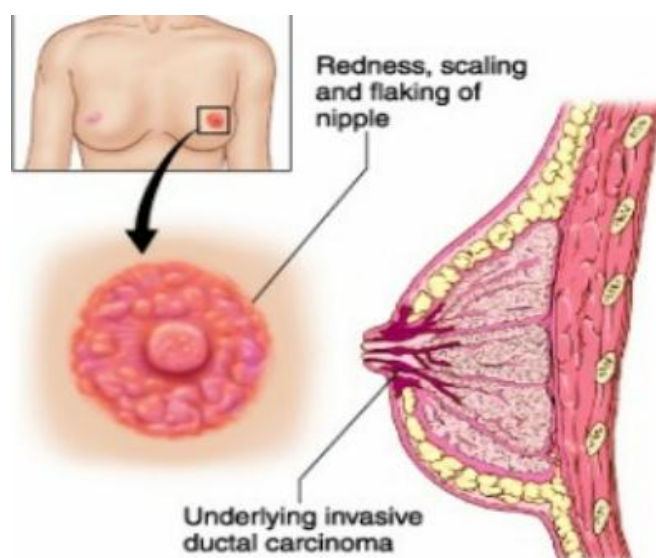
Symptoms of Breast Cancer

Most common symptoms of breast cancer is lump which is due to thickened tissue in women's breast but majority of lumps are not cancerous, however women must check them by professional health care.



Source-www.google.co/imagres/breastcancer/gethelpline.org.

- A lump in a breast.
- A pain in the armpits or breast that does not seem to be related to the woman's menstrual period.
- There may be pitting or redness of the skin of the breast.
- A rash around one of the nipples.
- A swelling or lump in one of the armpits.
- An area of thickened tissue in a breast.
- There may be has a discharge or it may contain blood in nipple.
- Changes in appearance of nipple they may become sunken or inverted.
- Breast size or the shape changes.
- The skin of nipple or breast may have started to peel, scale or flake.^[20]



www.google/image/breastcancer&bvm.

Diagnosis

Breast cancer can be diagnosed by

- 1) Physical examination of the breasts by a healthcare professional.
- 2) Mammograph- which can diagnosed that a lump is cancer or it may also detect some other lesions like simple cyst.^[27]
- 3) Fine Needle Aspiration-If these examinations are not properly conclude then physician remove sample of the fluid in the lump for microscopic analysis.
- 4) core biopsy or vacuum-assisted breast biopsy.^[26] –In this process a section of the breast lump is removed; or the entire lump is removed.
- 5) Additional tests may be performed in special circumstances such as imaging by ultrasound or MRI.

Prevention and Control

Diagnosis- early detection under the assumption can reduces the further complications of breast cancer. A number of diagnostic tests have been employed such as clinical and physical self breast examination, mammography, genetic screening, ultrasound, and magnetic resonance imaging. U.S. Preventive Services Task Force recommends mammography every two years in women between the ages of 50 and 74.^[21,22,23,24,25,28,29,30,35]

Reduction of life-style risks

Women can reduce their risk of breast cancer by breastfeeding their children it is the most ultimate cause of breast cancer, although by maintaining a healthy weight, drinking less

alcohol, being physically active by maintaining this life style.^[31] might it prevent 38% of breast cancers in the US, 42% in the UK, 28% in Brazil and 20% in China.^[32]

Morning walk and physical exercise can reduces the risk of breast are seen at all age groups including postmenopausal women.^[55]

Diet rich in marine omega-3 polyunsaturated fatty acids appear to reduce the risk of breast cancer. and also high intake of soy-based foods may reduce risk.^[33,34]

Protective drugs

Some drugs like tamoxifen reduces the risk of breast cancer but it may increase the risk of endometrium cancer and thromboembolism.^[37,38,39,40]

Control

The management of breast cancer depends on various factors which are depending on the stage of the cancer and the age of the patient.

Breast cancer is mostly treated with surgery, followed by chemotherapy or radiation therapy, or there may be both. Hormone receptor positive cancer treated by^[41] hormone-blocking therapy over courses of several years. Sometimes monoclonal antibodies, or other immune-modulating treatments, may be given in certain cases of metastatic and other advanced stages of breast cancer.

Surgery

Surgery is the most common treatment used in breast cancer in which physical removal of tumor alongwith some of the surrounding tissues after doing biopsy.

Types of surgery includes in breast cancer

❖ Mastectomy

Removal of the whole breast.

❖ Quadrantectomy

Removal of one quarter of the breast.

❖ Lumpectomy

Removal of a small part of the breast.

After the surgery if breast would have removed breast reconstruction surgery can be done which is a type of plastic surgery, to improve the aesthetic appearance of the treated site.^[42,43,44,45,46]

Treatment-Drug used for breast cancer treatment in addition to surgery includes hormone blocking agents, monoclonal antibodies and chemotherapy which is called as adjuvant therapy.^[47]

Hormone blocking therapy

Tamoxifen and anastrozole or letrozole are used as a hormone blocking agent either they block the estrogen or progesterone receptor or alternatively block the production of estrogen. tamoxifen recommended for 10 years.^[48,49]

Monoclonal antibodies

Monoclonal antibody like Trastuzumab

Trastuzumab, a monoclonal antibody used to treat HER2 receptor mediated breast cancer which is given about overall survival 95%.^[50] Under some stimulated condition by certain growth factors, HER2 causes cellular growth and division. When trastuzumab binds to the HER2 in breast cancer cells which overexpress the receptor and thus trastuzumab prevents growth factors from being bind to and stimulate the receptors, effectively blocking the growth of the cancer cells.^[51,54]

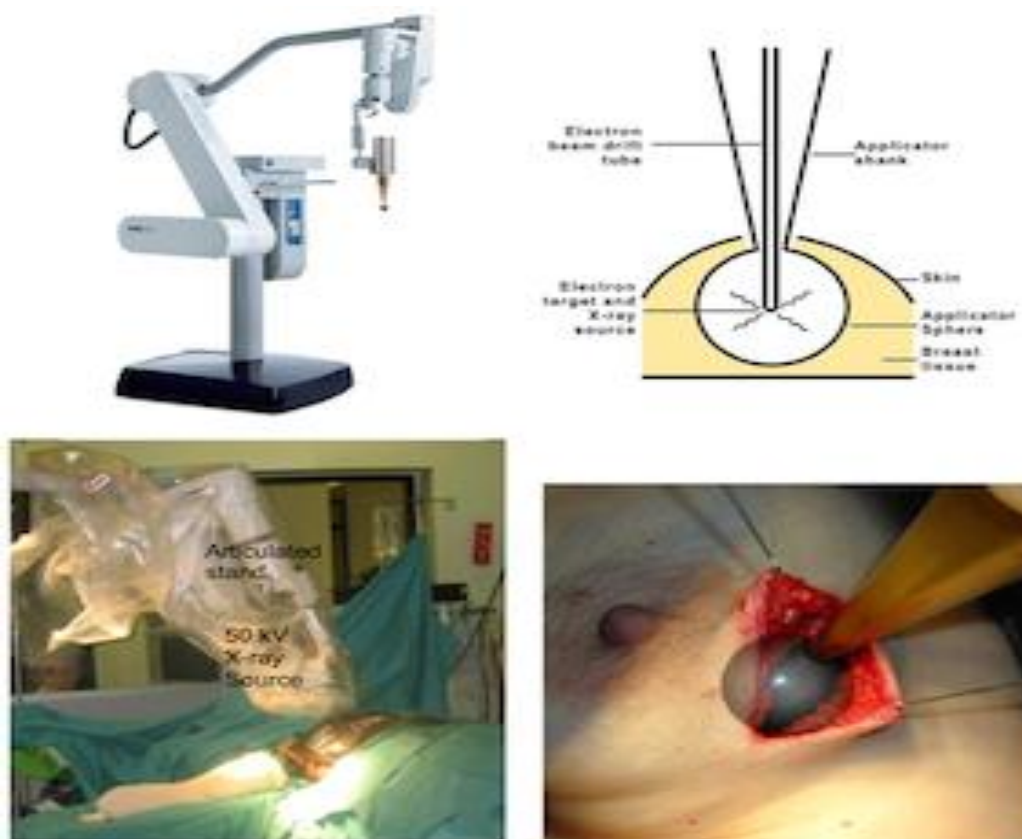
Chemotherapy

Chemotherapy mostly used in cases of breast cancer during stages 2-4 which is effective in estrogen receptor negative disease. In which combination of drug is given for periods 3-6 months. Cyclophosphamide in combination with doxorubicin is mostly given, another common combination is cyclophosphamide and methotrexate and fluorouracil is given. these medications work by destroying fast-growing and fast-replicating cancer cells either by causing DNA damage upon replication or by other mechanisms. However, the medications also damage fast-growing normal cells which may cause serious side effects.^[54,56,57,58]

Radiation

Radiotherapy is mostly given after surgery to destroy microscopic tumor cells that may have remains during surgery to the region of the tumor bed and regional lymph nodes.^[52,53]

Radiation therapy can be delivered as external beam radiotherapy or as brachytherapy. Radiation also be given at the time of operation on the breast cancer- intraoperatively.



Source-[www.google.co.in/wiki/radiation therapy](http://www.google.co.in/wiki/radiation%20therapy).

CONCLUSION

As per study 1 in 8 women will be diagnosed with breast cancer. the risk of breast cancer has been increased day by day as many factors are responsible for it like age, lack of breast feeding, lack of exercise, obesity, life style, alcohol consumption, genetics, hormonal contraceptive. diet. If breast cancer is detected early then the survival rate is more. Screening must be done every two years in women 50 to 74 years old, when caught early, then breast cancer has a 98% survival rate. A healthy diet & exercise routine can reduce your chance for breast cancer by nearly 40%. It has been seen that if awareness regarding the risk of breast cancer is developed amongst the female then it would be reduces the risk and complications of breast cancer up to 40%. By creating the importance of a healthy diet & routine exercise can reduce your chance for breast cancer by nearly 40%, change in life style, physical exercise, restrict the alcohol intake, breast feeding, diet containing soya products and marine omega-3 polyunsaturated fatty acids appear to reduce the risk.

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