

Breast cancer

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ABSTRACT

Breast cancer develops if breast cells multiply and expand out of control, forming a mass of tissue known as a tumor. Radiation therapy may be employed to cure a painful metastatic tumor that has spread after one lumpectomy or mastectomy by killing any residual cancer cells. Lowering estrogen levels through hormone therapy is typically done to prevent recurrence. Combining immunotherapy alongside chemotherapy intravenously strengthens defenses against malignant cells

Introduction

Breast cancer develops if breast cells multiply and expand out of control, forming a mass of tissue known as a tumor. A lump or mass is created when cancerous cells proceed to multiply more quickly than healthy cells. These cells might invade nearby lymph nodes or any other body areas through your breast and spread or metastasis there. Breast cancer can start as cells in milk production ducts or as glandular tissues termed as lobules (invasive lobular carcinoma) (invasive ductal carcinoma).

Types of breast cancer:

The non-invasive cancer stage 0, Angiosarcoma, Ductal Carcinoma in situ (DCIS) are both found solely in the duct. Inflammatory breast cancer, Lobular carcinoma in situ (LCIS), Invasive lobular carcinoma as well as an invasive malignancy that can expand beyond the ducts or lobules, Breast cancer in men, Recurrent Breast cancer.

Stages of breast cancer: The phases of breast cancer are as follows:

Stage 0, The tumor is non-invasive at this stage because it hasn't spread to the breast ducts. **Stage 1**, Cancer cells have now expanded to neighboring breast tissues. **Stage 2**, At this stage, the tumor can range in size from 2 - 5 centimeters, it might not impact surrounding lymph nodes. The tumor would either be under 2 centimeters but also has progressed to axillary lymph nodes or more than 5 centimeters and has not any progression. **Stage 3**, beyond the original site, cancer may spread or it might have expanded to local lymph nodes as well as tissues, but it hasn't reached distant organs. Described as **locally advanced breast cancer** at this stage. **Stage 4**, The brain, bones, lungs and liver are examples of distant sites where cancer has spread. **Metastatic breast cancer** is another name for stage 4 cancer [1].

Symptoms of breast cancer: Breast cancer symptoms include a growing lump on the breast and armpits, stiffness or inflammation of the breast, and loss of breast tissue. Pebling and itchy breast skin (skin changes all over breast) Skin flaking, peeling, and redness in the breast or nipple areas, pulling in of the nipples, nipple area soreness, and changes to the breast's appearance, size, volume, or shape. A clear or blood-stained fluid discharges from the nipple.

Risk factors: Breast cancer could be caused by a variety of circumstances, including: **Age**, older age increases cancer risk. Moreover, women are at a greater risk than men to acquire breast cancer. **Inherited mutated genes**, in cases when there is a genetic link of mammary or other malignancies, the breast cancer genes 1 (BRCA 1) and 2 (BRCA 2) enhance the probability of developing breast cancer. A blood test is advised by the doctor to detect BRCA mutations. **Personal history**, it means that an individual is at significant risk of breast cancer if a breast biopsy reveals Lobular Carcinoma in situ (LCIS) or atypical hyperplasia of either the breast. If a family member has been given a breast cancer diagnosis, especially when they were young, the probability of breast cancer increased. However, the majority of people who are diagnosed of breast cancer have little or no family history of it. **Exposure to radiation**, it is another cause of breast cancer. Breast cancer risk increases if you get radiation therapy to the chest as a kid or young adult. **Obesity**, can sometimes result in breast cancer. Moreover, starting **menopause** later in life raises the probability of developing breast cancer. some instances Treatment with postmenopausal hormones may cause breast cancer. Breast cancer risk is higher in women who use estrogen and progesterone-containing **hormone treatment** drugs to address menopausal symptoms. **Excessive alcohol consumption** may also contribute to breast cancer development.

Diagnosis of breast cancer: There are numerous procedures to screen for breast abnormalities, including mammograms, which use specialized x-ray images to look for alterations or irregular breast growth.

Ultrasonography is another test which is effective in helping diagnose breast cancer. This test makes use of sound waves to capture an image of the tissues inside the breast and is used to identify tumors or other abnormalities in the breast. Throughout this test, special stains are utilized to identify problematic spots, and then positron emission tomography scanning is used to capture images. Another test that can be performed for diagnosis is magnetic resonance imaging, which produces a crisp and comprehensive view of the breast's internal structure using magnets and radio waves [2].

Treatment of breast cancer: surgery, radiation therapy, chemotherapeutic treatment, hormone therapy, and immunotherapy are all included. There are numerous surgical therapies that can be carried out, including a lumpectomy, in which the tumor is excised along with some lymph nodes from the breast as well as underarm for assessment. Under certain situations, a doctor can conduct a nipple-sparing mastectomy to save nipples as well as areola (the dark skin surrounding nipples). Sentinel node biopsy has been created to prevent the needless removal of several lymph nodes which have not become cancerous. In a modified radical mastectomy, the whole breast is excised along with the nipples and underarm lymph nodes, however the chest tissues are left untouched. Contrarily, chemotherapy uses medications to kill cancer cells by preventing them from proliferating, replicating, and creating new cells. Neoadjuvant chemotherapy, which is administered prior to surgery to diminish a large tumor and allow the procedure easier, and adjuvant chemotherapy, which is administered post-surgery to lower the chance of reappearance, are two ways that chemotherapy may be administered. Docetaxel, doxorubicin, paclitaxel, carboplatin, capecitabine, and fluorouracil are typical medications. Several medication combinations are often employed, including EC (epirubicin and cyclophosphamide), AC (doxorubicin and cyclophosphamide), -fluorouracil) CEF (cyclophosphamide, epirubicin and 5-fluorouracil), CAF (cyclophosphamide, doxorubicin and 5 CMF (cyclophosphamide, methotrexate and 5-FU). Fatigue, tingling, weight gain, appetite loss, infections, diarrhea, numbness and hair loss are just a few of the adverse reactions to chemotherapy. Radiation therapy may be employed to cure a painful metastatic tumor that has spread after one lumpectomy or mastectomy by killing any residual cancer cells. Lowering estrogen levels through hormone therapy is typically done to prevent recurrence. Combining immunotherapy alongside chemotherapy intravenously strengthens defenses against malignant cells [3].

References

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