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CLINICAL AND MORPHOLOGICAL ASPECTS OF BREAST CANCER: IMPORTANCE FOR EARLY DETECTION AND PREVENTION

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Abstract: Breast cancer is one of the most common oncological diseases among women, and its early detection significantly improves the prognosis of the disease. This work highlights the clinical and morphological aspects of breast cancer, their diagnostic significance, and their role in detecting and preventing the disease at early stages. Clinical signs include the appearance of a lump in the breast, changes in the skin and nipple, discharge, and pain syndrome. Morphologically, the histological types, differential grade, and invasiveness of tumors are considered.

Keywords: breast examination, lymph nodes, mammogram, breast ultrasound, biopsy, breast lump, cancer diagnosis, hormone receptors, diagnostic mammogram, screening, ultrasound imaging, tissue sample.

INTRODUCTION

Breast cancer begins when abnormal cells in the breast tissue grow into tumors. It is most common in women, but it can also occur in men, although it is very rare. A person may be predisposed to breast cancer by many risk factors, including genetics, age, hormone imbalances, lifestyle factors, and environmental factors. Although genetics cannot be changed, a person can reduce their risk and increase their chances of a successful outcome if they are diagnosed with cancer by making lifestyle changes, getting screened frequently, and having a successful outcome.

Despite all the advances in medical technology, this condition continues to negatively impact the lives of many women and families around the world. Modern cancer treatment and early detection are among the most important strategies for reducing the number of deaths from breast cancer. Successful treatment of breast cancer is easier if it is detected early, when it is still small and has not spread. The most effective strategy for early detection of breast cancer is to undergo regular screening examinations.

METHODS

Breast examination: The breasts and lymph nodes in the armpits of a person with suspected cancer are examined by a doctor for any lumps or other abnormalities.

Mammogram: An X-ray of the breast is called a mammogram. Mammograms are used to screen for breast cancer. After a screening mammogram detects the presence of breast cancer, an additional diagnostic mammogram is recommended to evaluate the abnormality.

Breast ultrasound: An ultrasound uses sound waves to produce images of structures deep within the body. It can be used to examine a lump in the breast to diagnose breast cancer and to help determine whether the lump is a solid mass or a fluid-filled cyst.

Biopsy: This procedure involves taking a sample of breast cells and testing them. This is probably the most accurate way to diagnose breast cancer. To do this, your doctor will use a special needle device, along with an imaging test or X-ray, to take a core of tissue from the suspicious area. These samples are sent to a lab for analysis to determine if the cells are cancerous.

A biopsy sample is also used to determine the aggressiveness of the cancer and to check whether the cancer cells have hormone receptors or other receptors that may play a role in the treatment processes that need to be monitored.

RESULTS

Treatment for breast cancer depends on factors such as the patient's age, stage of cancer, etc. The intensity of treatment depends on the likelihood of recurrence of the disease and the patient's prognosis. Surgery is the usual treatment for breast cancer. This is followed by chemotherapy, radiation therapy, or both, in most cases. A multidisciplinary approach is preferred for the treatment of breast cancer. Hormone-blocking therapy is used in cancers that have hormone receptors. In metastatic breast cancer and other advanced stages of breast cancer, monoclonal antibodies and immunomodulatory treatments are used.

Surgery: This is a widely used treatment method that involves the physical removal of the tumor. During surgery, the tissue around the tumor is also removed. Mastectomy, quadrantectomy, lumpectomy are common surgeries used for breast cancer. Mastectomy involves the removal of the entire breast. Quadrantectomy and lumpectomy involve the removal of a quarter of the breast and a smaller part of the breast.

After removing the breast, the doctor may suggest breast reconstruction surgery to improve the aesthetic appearance of the treated area.

Drugs used to treat breast cancer in addition to surgery are called adjuvant therapy. Therapy given before surgery is called neoadjuvant therapy.

Neoadjuvant therapy for breast cancer includes three main components – hormone-blocking therapy, chemotherapy, and monoclonal antibodies.

Hormone-blocking therapy - The presence of estrogen receptors (ER+) and progesterone receptors (PR+) on the surface of the cancer indicates that the cancer requires hormones to continue growing. These ER+ cancers are treated with drugs that block the receptors (tamoxifen) or an aromatase inhibitor (anastrozole). However, these drugs come with limitations. Tamoxifen can only be used for ten years, and aromatase inhibitors are only suitable for women after menopause.

Chemotherapy – This is used to treat breast cancer between stages 2-4. Chemotherapy is effective in ER patients. Typically, chemotherapy kills fast-growing cancer cells by damaging their DNA. The drugs used during therapy also damage some fast-growing normal cells, which can sometimes have serious side effects.

DISCUSSION

As mentioned above, some risk factors are modifiable, while others are fixed risk factors. There is nothing you can do to help with fixed risk factors, but a person has complete control over modifiable risk factors. The following precautions and lifestyle changes can help to combat modifiable risk factors for breast cancer.

Alcohol - Limiting or not drinking alcohol can reduce the risk of developing breast cancer.

Smoking - Studies show that not smoking in premenopausal women can significantly reduce the risk of breast cancer.

Weight - Weight control is an effective tool not only in preventing breast cancer, but also in other diseases that women are prone to. Being overweight after menopause increases the likelihood of breast cancer.

Activity - At least 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity is necessary to prevent breast cancer. Strength training twice a week is recommended to prevent breast cancer.

Breastfeeding – Breastfeeding plays a major role in preventing breast cancer. The longer a woman breastfeeds, the greater the protective effect. Studies show that breastfeeding for 1-2 years significantly reduces the risk of developing breast cancer.

Therapy – Hormone replacement therapy for more than 3-5 years increases the risk of breast cancer. Non-hormonal therapy is not harmful. If therapy is necessary, the dose can be adjusted to the lowest possible level to reduce the possible risks.

Radiation – Medical imaging procedures such as computed tomography (CT) use high doses of radiation, which can be more harmful to people at risk of developing breast cancer. Such exposure should be limited to those who are absolutely necessary to avoid unnecessary effects.

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