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| Research Article

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Causes and Molecular Types of Breast Cancer

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Annotation: This article describes the causes of breast cancer and their prevention measures. Specific molecular types of breast cancer are revealed.

Keywords: Breast cancer, molecular types, prevention.

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Relevance

Breast cancer is a malignant tumor that occurs in the tissues of the mammary glands. It is the most common type of cancer among women in the world, with an incidence of 99.4 cases per 100,000 women between the ages of 13 and 90. According to the WHO, 800,000-1,000,000 new cases of the disease are recorded every year in the world. Most of the tumors that appear in the mammary glands are of good quality and are not considered dangerous: they grow slowly, the tumor cells are not significantly different from healthy cells, and they do not spread to other organs or parts of the body. Cancer occurs as a result of mutations - atypical changes in genes responsible for regulating growth in cells and keeping them healthy. Bad-quality cells multiply uncontrollably, so over time they can spread beyond the primary tumor to surrounding healthy tissues, lymph nodes, and distant organs. A malignant tumor developed from mammary gland cells is called breast cancer. Most often, the disease begins in the lobular cells (glands that produce milk) or in the ducts (the paths through which the milk produced in the lobules reaches the nipple). In most cases, breast cancer occurs accidentally. In only 10% of cases, the disease is inherited due to mutations in the BRCA1 and BRCA2 genes. The presence of the mutation is estimated to increase the risk of developing breast cancer by 60-80%, so in some European countries it is an indication for preventive mastectomy (complete removal of the breast).

Cancer risk factors. These are the reasons that trigger the onset of cancer. But it should be remembered that this is only about the probability of cancer, not about the inevitable development of the disease in a certain patient.

Risk factors are divided into two groups - factors that cannot be influenced and factors that can be reduced:

Uncontrollable risk factors include:

- Female gender. The disease rarely develops in men (it may be due to a mutation in genes);
- Age. In 90 percent of cases, the disease is diagnosed in patients over 40 years old;
- Genetic predisposition, presence of mutations in BRCA1 and BRCA2 genes;

- Dangerous precancerous (precancerous) diseases of mammary glands;
- Presence of breast cancer in the anamnesis;
- History of chest radiation exposure;
- Early onset of menstruation or menarche (before the age of 12), late menopause (after the age of 55).

Risk factors that can be influenced:

- A woman's inability to become pregnant (the risk increases if she is not pregnant), refusal to breastfeed, artificial termination of pregnancy;
- Obesity;
- Diabetes, hypertension;
- Long-term use of steroid hormones, hormonal contraceptives;
- Abuse of alcoholic beverages, smoking;
- Insufficient physical activity;
- Night work schedule.

Molecular types of breast cancer

Objective

To provide clinical and morphological justification for modern complex treatment methods for breast cancer.

Materials and Methods

Study Types and Objects:150 patients with breast cancer treated between 2018 and 2023 were clinically and morphologically studied. Patients were divided into groups according to their molecular type and stage of disease.

Result, The prognosis of the course of the disease and how it responds to treatment depends on the molecular-genetic characteristics of the tumor.

Conclusion, The presence or absence of estrogen (ER) and progesterone (PR) hormone receptors, HER2 / neu epidermal growth factor receptors and other molecular and genetic markers in tumor cells is taken into account.

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