

CAUSING FACTORS, SYMPTOMS, STAGES, DIAGNOSIS AND TREATMENT OF TUMOR DISEASES OF THE BREAST

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Abstract. *This article discusses the causes of breast cancer, the leading cause of death among women in the world rankings, changes observed in women, symptoms, pathophysiology, stages, diagnosis and treatment, and treatment. The new approach included information on the use of apitherapy.*

Keywords: *lobular cancer, mutation, young age, menopause, ductal carcinoma in situ, tumor marker.*

INTRODUCTION

Breast cancer is a tumor that develops in the tissues of the mammary glands. Most tumors that arise in the mammary glands are benign and are not considered dangerous: they grow slowly, tumor cells do not differ significantly from healthy cells, and do not spread to other organs or parts of the body. Cancer is caused by mutations—abnormal changes in genes that regulate cell growth and keep cells healthy. Poor quality cells multiply uncontrollably, so over time they can spread beyond the primary tumor to surrounding healthy tissue, lymph nodes and distant organs.

According to statistics from the World Health Organization, breast cancer is the second most common cancer after lung cancer and the first cancer causing death among women.

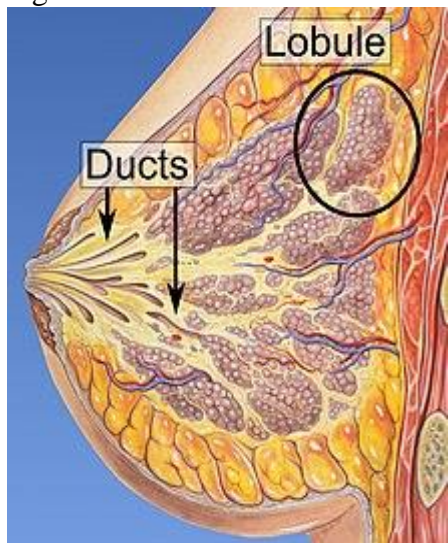
MATERIALS AND RESEARCH METHODS:

The situation in developed countries regarding breast cancer is as follows: For example, in Japan, as in all countries, we can observe many progressive and regressive disease processes. In Japan, every 39th woman suffers from this disease. Specifically, for every 10 thousand population, the average number of 50–54-year-olds was 19 in 1985-1989, 21 in 1990-1994, 29 in 2000-2004 and 27 in 2010-2014. The risk of developing the disease increases with age. It is known that currently the disease occurs even among adolescents 11-13 years old due to their “young age” [4]. Breast cancer is the most common malignant tumor in women, and the number of new cases worldwide exceeds 2.3 million per year [3]. During their lifetime, 1 in 7 women in the United States and 1 in 10 women in Russia develop breast cancer [2]. Enough [1]. In 2018, 3,578 women with breast cancer were registered in Uzbekistan. Today, about 18,000 women suffer from breast cancer. Every year, 800,000–1,000,000 new cases of the disease are registered worldwide. The indicator increased by 0.3% compared to previous years [4]. According to scientists, the risk of breast cancer is especially high in the age range of 50-60 years and is 70%; 1 out of every 12 women in the world suffers from this disease. This disease has not spared men either. The probability of occurrence in men is 0.5-1%, and 15% of the causes of the disease in them are genetic predisposition.

FACTORS FOR THE DEVELOPMENT OF BREAST CANCER:

Risk factors for developing breast cancer include obesity, lack of physical activity, alcoholism, hormone replacement therapy during menopause, ionizing radiation, early, late or absent first menstruation, and a family history of the disease of approximately 5-10. Genetic predisposition. inherited from a person's parents in % of cases as a result, the presence of mutations

in the BRCA1 and BRCA2 genes is a risk factor for developing this disease. Major risk factor for breast cancer One of the factors is the occurrence of this disease in women, and the second is the high incidence of older women. In addition, uncontrollable risk factors include heredity, infertility



ty to get pregnant), high levels of certain hormones, diet and [5]. Breast cancer often begins in the cells lining the milk ducts and the lobules that supply those ducts with milk begins. Cancer that develops in the ducts is called ductal carcinoma, cancer that develops in the lobules is called lobular carcinoma. There are also more than 18 other subtypes of breast cancer. For example, ductal carcinoma in situ occurs in preinvasive lesions. The diagnosis of breast cancer is confirmed by taking a biopsy of the relevant tissue. After diagnosis, additional tests are done to determine whether the cancer has spread beyond breast and to determine which treatments are most effective. factors are divided into two groups - factors that cannot be influenced and factors that can be reduced.

Uncontrollable risk factors include:

- Female. The disease rarely develops in men (possibly due to mutations in genes);
- Age. In 90 percent of cases, the disease is diagnosed in patients over 40 years of age;
- Genetic predisposition, presence of mutations in the BRCA1 and BRCA2 genes;
- Dangerous precancerous (precancerous) diseases of the mammary glands;
- History of breast cancer;
- History of chest radiation exposure;
- Early onset of menstruation or menarche (before 12 years), late menopause (after 55 years).

Modifiable risk factors:

- Inability of a woman to become pregnant (the risk increases if she is not pregnant), refusal to breastfeed, artificial termination of pregnancy;
- Obesity;
- Diabetes mellitus, hypertension;
- Long-term use of steroid hormones, hormonal contraceptives;
- Alcohol abuse, smoking;
- Insufficient physical activity;
- Night work schedule.

SYMPTOMS OF THE DISEASE:

Breast cancer often starts in the lobular cells (the glands that produce milk) or the ducts (the path that carries milk from the lobules to the nipple). More than 80% of people with this disease can identify such a formation on their fingertips. However, the earliest detection of breast cancer occurs through mammography. Lumps in the lymph nodes in the armpits can also be a sign of breast cancer. Symptoms of breast cancer include thickening unlike other breast tissue, changes in the size, shape or appearance of the breasts, changes in the skin, a lump different from the tissue around the breast, redness of the breast or part of the breast. or changes in breast discharge, and if it gets worse, you may experience bone pain, swollen lymph nodes, shortness of breath, or jaundice (yellowing of the chest or entire body). In addition, one breast may become larger or smaller,

change the shape of the breast, indent the nipple, fold the skin, develop a rash on or around the breast, or have persistent pain and swelling in one part of the breast or in the armpit [6]. This type of pain (“mastodynia”) is an unreliable predictor of breast cancer, but may indicate other breast health problems. Inflammatory breast cancer is a rare (less than 5% of breast cancer cases) but dangerous type of breast cancer characterized by swollen, red areas in the upper part of the breast. Inflammatory breast cancer is caused by cancer cells blocking the lymphatic vessels. This type of breast cancer is more common in young or obese women. Because inflammatory breast cancer is not a tumor, there can sometimes be a delay in diagnosis. Malignant tumors can give rise to metastatic tumors - secondary tumors (arising from the primary tumor) that have spread beyond the site of origin [7]. Metastatic symptoms of breast cancer depend on the location of the metastases. Common sites of metastasis include bone, liver, lung, and brain. When cancer reaches this stage, it is classified as stage 4 cancer, which is most often the fatal stage of cancer. Common symptoms of stage 4 cancer include unexplained weight loss, bone and joint pain, jaundice and neurological symptoms [8]. These symptoms are called nonspecific symptoms because they can be seen in many diseases other than cancer.

STEPS:

The stage of breast cancer is determined depending on the characteristics of the disease. Determining the stage helps to choose the optimal treatment methods. Stages of breast cancer typically range from 0 to IV, with stage 0 being non-invasive cancer (carcinoma in situ) and stage IV being invasive disease that has spread to other parts of the body.

Breast cancer is usually classified into stages:

- Stage 0 – non-invasive breast cancer (carcinoma in situ) – has not spread to the tissue surrounding the breast ducts. Non-invasive breast cancer is usually detected during a mammogram and rarely appears as a lump in the breast.

- Stage I - non-invasive breast cancer. Cancer affects tissue near the tumor. The size of the tumor does not exceed 2 cm. The lymph nodes are normal.

- Stage II - invasive cancer. Cancer cells spread through the lining of the ducts into the surrounding breast tissue. The diameter of the tumor is from 2 to 5 cm, the tumor damages the lymph nodes under the armpit. This is the most common type of breast cancer.

Stage III is divided into two stages:

- Stage IIIA. The diameter of the tumor is more than 5 cm, the lymph nodes are greatly enlarged. They stick to each other and to surrounding tissues.

- Stage IIIB. This type includes inflammatory cancer and infiltrative ductal cancer. Characteristic signs of stage 3 are redness of the skin and the appearance of an orange color to the skin [9]. The tumor can be of different sizes. At this stage, the skin of the breast, the internal lymph nodes of the breast or the chest wall are damaged.

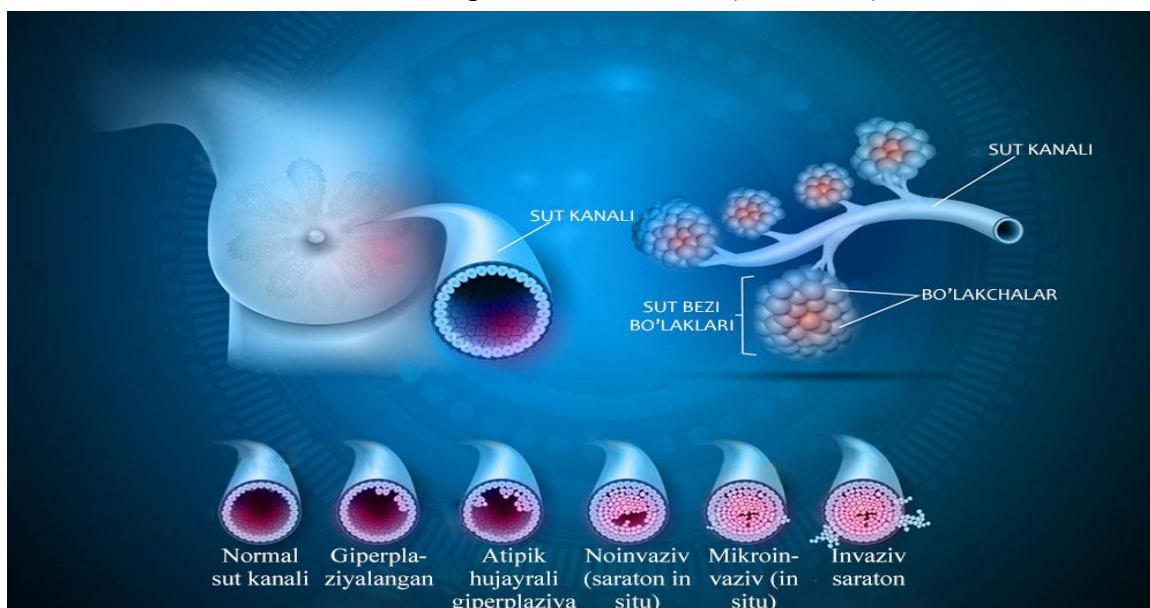
- Stage IV. The tumor invades the internal lymph nodes, reaches the armpit, and also affects the spine, lymph nodes, liver, lungs and brain. Stage 4 cancer is most often diagnosed in women with mutations in the BRCA-1 and BRCA-2 genes.

The figure below shows the anatomy of the mammary glands and their condition during cancer.

What to consider when determining stage:

- Tumor size (indicated by the letter T);
- Condition of regional lymph nodes (letter N);
- Presence of distant metastases (letter M);

- Degree of differentiation of tumor cells (letter G);
- State of tumor receptors (presence of estrogen and progesterone receptors);
- Cancer proliferation index Ki67;
- Presence or absence of overexpression of ERBB2 (HER2/neu).



DIAGNOSTICS:

If you suspect or have symptoms of breast cancer, you should see your doctor for a professional evaluation. The mammologist conducts an initial examination and makes an accurate diagnosis after the following diagnostic studies:

- mammography;
- analysis of tumor markers CA 15-3 in the blood;
- ultrasound examination of the mammary glands, abdominal organs, lymph nodes;
- biopsy (This method helps determine the type of tumor. The danger is determined by examining pieces of tumor tissue under a microscope);
- ductography (contrast mammography);
- immunohistochemical study (to determine the sensitivity of the tumor to certain hormones - estrogen, progesterone).

TREATMENT:

The choice of treatment method depends on many factors: the stage of the disease, the woman's age, the structure and size of the tumor, and growth rate. Modern treatment methods use the optimal combination of surgical, radiation and chemotherapy methods, that is, an integrated approach. In therapy, specialists must approach each patient individually. The team of specialists must offer the woman specific treatment methods in order for the treatment to be successful from an oncological and aesthetic point of view. Today, the most effective methods of treating breast cancer are:

- lumpectomy (includes removal of the tumor itself);
- mastectomy (includes complete removal of the mammary gland and other tissues);
- radiation therapy (if the patient has passed menopause) – cancer is irradiated with radioactive radiation;
- chemotherapy (if the patient has not gone through menopause) – cytostatics are used to ensure the death of cancer cells;

- hormonal therapy – drugs are used that block the sensitivity of the tumor to hormones;
- immunotherapy.

After surgery, depending on the characteristics of the body, the quality of treatment, and the stage of the disease, some patients live for several years, and some until old age. According to statistics, new metastases after surgery appear in the first 3-5 years, then the risk of tumor formation sharply decreases.

Currently, apitherapy is treatment with bee venom. This is one of the new trends in medicine, and its use in oncology will help achieve the expected results [4]. First, it is determined where exactly the breast cancer is located. Then bees sting this place. The patient is then prescribed chemotherapy. In this case, the drugs act on the affected area without affecting other organs. If we apply this treatment method in medicine, it will be very effective. Scientists have found that bee venom contains substances that enhance immunity. This prevents other azos from being ineffective in treating additional infectious diseases and when patients are taking multiple medications. Currently, this method is widely used in medicine in foreign countries. This method is widely used, especially in France and Germany.

Components of bee venom and their effect on the human body:

- microelements – magnesium, phosphorus, calcium, copper;
- acetylcholine and histamine – expand the diameter of blood vessels and increase their permeability;
- inorganic acids – phosphoric acid, chloride acid, formic acid;
- amino acids – 18 out of 20 available;
- acid phosphatase – a protein of complex structure;
- hyaluronidase – a special enzyme that destroys tissue and blood structures and causes a severe allergic reaction;
- phospholipase A is a strong allergen and antigen for the human body, disrupts tissue respiration and converts phospholipids into toxic substances;
- phospholipase B – converts toxic compounds into non-toxic ones, reduces the activity of phospholipase A.

Factors that reduce the risk of developing breast cancer:

1. It is recommended not only to follow the principles of a healthy diet, but also to eat healthy foods regularly. These include: cruciferous vegetables, especially cabbage and broccoli, dark, blue and red fruits, tomatoes, walnuts, garlic, beans, carrots, apricots, pumpkin.

2. Eat spinach! Women who regularly consume this product reduce the risk of developing breast and cervical cancer.

3. Don't forget the nuts! Eating just 15 grams of peanuts per day is enough to reduce the risk of death from many diseases, including breast cancer and diabetes.

4. The common belief that high meat consumption can increase the risk of developing tumors has been proven wrong: more than 20 studies have not confirmed this. Therefore, meat can be eaten without fat and in reasonable quantities.

5. Be careful with alcohol! If a woman drinks alcohol regularly, the risk of breast cancer increases by about 7 percent.

6. It is very important for women to monitor their weight, especially during menopause. A combination of strength training and cardio has been found to be the most effective way to lose

weight and gain muscle mass. Women are recommended to spend at least 4-7 hours a week in the gym.

7. Late-night snacking is dangerous not only for your waistline, but also for women's health in general. Eating earlier and avoiding eating at night can help stabilize your blood sugar and reduce your risk of breast cancer and diabetes.

8. It is very important to sleep at night - it is necessary for the production of melatonin. Women who work night shifts, especially 12-hour shifts, have been shown to have an increased risk of developing breast cancer.

9. Take action! A sedentary lifestyle increases the risk of breast cancer, ovarian cancer and tumors in women by at least 10%.

10. Get regular breast exams! Women aged 50–69 who had regular mammograms had a 40 percent reduction in risk of death from breast cancer due to early detection of the tumor.

CONCLUSION

The survival rate for breast cancer is 55%. If adequate treatment measures are not taken, this figure is 10%. The level of livability is influenced by many factors. If survival is determined by tumor stages, then in the initial stages of the tumor it is 95%. At the second stage, when the tumor reaches 5 cm, the viability of tumor cells with metastases to two lymph nodes is 55-80%. Survival rate for stage III and IV cancer is 10-50%. However, timely detection of the disease, its treatment, simultaneous surgery and chemotherapy, strict adherence to the doctor's recommendations and a healthy lifestyle make it possible to overcome this disease to a certain extent. Research shows that early detection of the disease is the most important factor!

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