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MODERN METHODS OF EXAMINATION FOR SUSPECTED BREAST CANCER

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Abstract
A high degree of mammary gland diseases is considered to be one of the main factors that significantly affect the health of women. The number of new cases of breast cancer detected annually in different countries of the world today has exceeded 1 million and is 10% of all malignant tumors of various localizations.[8]. Despite the success in the cure and the increase in the ability to diagnose this pathology, the mortality rate from breast cancer remains
significant. This is due, in general, to the late diagnosis of this pathology in conjunction with the untimely call of patients, and in addition, the lack of highly sensitive methods for determining the early stages of breast cancer, insufficiently clear diagnosis of metastases in regional lymph nodes [9].

Keywords: Breast cancer, estrogen and progesterone receptors, mammography, breast ultrasound.

Introduction

If there is a clinical suspicion, it is necessary to confirm the diagnosis using instrumental examination methods with the performance of general and biochemical blood tests (see section 2.1. "Diagnostics"). Morphological (histological or cytological) examination of the primary tumor with the determination of RE, RP, HER2 and Ki67 should be performed in all cases of newly diagnosed metastatic breast cancer, as well as in all possible cases in metastatic and recurrent foci with progression after primary treatment of early and locally advanced breast cancer. In addition, to choose the optimal method of drug therapy [1]. Currently, it is believed that up to 5% of breast cancers are hereditary. Over the past decade, molecular genetics technologies have made it possible to identify some genes that are responsible for the occurrence, course and prognosis of hereditary forms of breast cancer. Genes with high penetrance include BRCA 1 and 2 (Breast Associated).Mutations in these genes increase the individual risk of developing breast cancer throughout the patient's life by more than 100 times. The presence of mutations in low-penetrant genes, such as PTEN, P53, ATM, increases the individual risk of developing breast cancer by less than 2 times. There are also genes of medium penetrance, for example, CHEK2 and NBS1, mutations in which increase the individual risk of developing breast cancer by 2 to 10 times [6]. Among oncological diseases, breast cancer in women ranks 1st and is one of the most common

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causes of death in women from cancer. According to the World Health Organization (WHO), over 2.2 million cases of the disease were reported in 2020. It is believed that every twelfth woman can get breast cancer during her lifetime. Breast cancer occurs in the epithelial cells of the ducts (85%) or lobules (15%) of the glandular tissue of the breast. At first, the growth of the tumor is limited to the duct or lobule (pre-invasive cancer, "cancer in situ" – in situ, stage 0), where it does not cause any symptoms and very rarely metastasizes. Over time, cancer in situ grows and turns into invasive breast cancer, and then can spread to nearby lymph nodes (regional metastasis), and then to other organs (distant metastasis. Secondly, ultrasound allows you to detect even minimal nodular formations (from 3-4 mm) in patients with high mammography density. That is why it is recommended to perform ultrasound in women with a C and D type of structure according to the MG. The combination of two methods of diagnosing the mammary glands – MG and ultrasound – is the most effective diagnostic algorithm today. [7].

Materials and methods:

The material of the study is the literature data presented in scientific articles, textbooks, journals.

Results:

Early detection of mutations in the described genes has important diagnostic significance. For example, germinal mutations in one of the BRCA1 gene alleles cause the manifestation of breast cancer in 75% of cases by the age of 50 and in 90% by the age of 70 [2]. It is important to highlight that approximately 1% of all breast cancer situations, according to A. B. Bykov, is required for men. In carriers of gennadia BRCA 2, the possibility of clinical manifestation is about 6% (almost 200 times higher than in the general population). In women, together with this gene, the risk of oncopathology from the mammary glands is 50–85%, and the risk of ovarian cancer is 10–15% [3]. The most commonly used method of diagnosis is mammography. It allows you to detect suspicious areas of the snow chain in the premature stages of formation for their further detailed examination (biopsy). But this method makes it possible to detect nurtures with a size of at least 5–10 millimeters, which, due to their rather large volumes, are not consistently characterized by a positive prognosis [4]. The problem of selecting an effective set of research events, the presence and detection of doubtful local formations in mammograms becomes acute.Until recently, there were two key approaches: performing excisional biopsy (sectoral removal) and dynamic control, but the second version is quite capable of ending in a late diagnosis of cancer. About fifty percent of all biopsies are benign [5]. The effectiveness of MG in patients with high-tech medical care is unacceptably low and amounts to about 50%. And the fatty type of breast structure looks dark, and any changes are clearly identified against its background – the effectiveness of mammography is high and reaches 99–100%. Dense breast tissue is a fairly common phenomenon: about 43% of women of screening age (after 40 years of age) have heterogeneous or extremely dense breasts [7].

Conclusion:

Early detection of breast cancer is a complex and important problem of modern medicine. It would seem that what can be difficult to diagnose the mammary glands, but the individual structure of the glands in any woman and a huge variety of pathological changes make it extremely difficult for a diagnostician. In specific cases, benign and malignant tumors are similar to each other, and

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in order not to miss cancer, the doctor must have several diagnostic methods - to be a multimodal specialist.

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