RECOMMENDATIONS FOR A PERSONALIZED APPROACH TO THE TREATMENT OF PATIENTS WITH EARLY-STAGE BREAST CANCER

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Relevance. Breast cancer remains one of the most common malignant tumors in women and the leading cause of cancer-related death in developed countries. Despite significant advances in screening and early diagnosis, the incidence rate continues to rise, necessitating improved treatment approaches, particularly in the early stages of the disease, when the chances of cure and maintaining a high quality of life are greatest [1, 7, 8].

Traditional breast cancer treatment regimens, based primarily on the clinical and morphological characteristics of the tumor, often lead to overtreatment in some patients and, conversely, undertreatment in others. This is due to the biological heterogeneity of breast tumors, which manifests itself in differences in molecular genetic profile, growth rates, sensitivity to drug therapy, and prognosis [6].

In recent years, it has been proven that molecular biological and genetic changes play a key role even in the early stages of breast cancer. Hormonal receptor expression, HER2 status, the level of proliferative activity, and the

presence of specific genetic mutations determine the biological behavior of the tumor and its response to treatment. Taking these factors into account allows for stratification of patients by risk of recurrence and individualization of the extent of surgical intervention, as well as the need for chemotherapy, hormonal therapy, and targeted therapy [9, 10].

A personalized approach to treating patients with early-stage breast cancer is a key focus of modern oncology and personalized medicine. It aims not only to increase the effectiveness of anti-tumor treatment but also to reduce the incidence of side effects, prevent overtreatment, and improve the long-term prognosis and quality of life of patients [2,3].

With the introduction of molecular genetic technologies and a multidisciplinary approach, the development and implementation of practical guidelines for personalized treatment of early breast cancer is particularly relevant. This allows for the optimization of treatment algorithms, increased clinical validity of decisions, and a personalized approach to each patient.[4]

1. Molecular biological stratification of patients

Determination of the tumor's molecular subtype using immunohistochemical markers (ER, PR, HER2, Ki-67) is recommended. This allows for classification of the tumor as luminal A, luminal B, HER2-positive, or triple-negative, and the selection of the optimal therapeutic strategy.

2. Individualization of surgical treatment

In the early stages of the disease, preference should be given to organ-preserving surgery, provided the oncological outcome is complete. The extent of surgical intervention should be determined based on the tumor size, its location, biological properties, and the condition of the regional lymph nodes.

3. Personalized choice of systemic therapy

The selection of adjuvant systemic therapy should be based on the tumor's molecular subtype, level of proliferative activity, and the presence of high-risk factors for recurrence.

– For hormone- receptor-positive tumors, hormonal therapy is recommended, taking into account menopausal status. – For HER2-positive tumors, targeted therapy is indicated . – For triple-negative disease, the decision on chemotherapy should be made individually, taking into account prognostic factors.

4. Use of genomic prognostic tests

For patients with hormone receptor-positive breast cancer without lymph node involvement, the use of multifactorial genomic tests is recommended to assess the risk of recurrence and the appropriateness of chemotherapy.

5. Optimization of radiation therapy

Radiation therapy should be planned taking into account the extent of surgical intervention, the biological characteristics of the tumor, and the individual risk of local recurrence. Possible de-escalation of radiation exposure in patients with low risk of progression.

6. Taking into account genetic predisposition

Patients with a strong family history are recommended to undergo molecular genetic counseling and testing for hereditary mutations. Test results may influence the choice of surgical approach and subsequent follow-up.

7. Interdisciplinary approach

Treatment decisions should be made by a multidisciplinary team including an oncologist, surgeon, radiologist, pathologist, and geneticist. This ensures a comprehensive assessment of the clinical situation and personalized therapy.

8. Dynamic monitoring and quality of life

After completion of treatment, individualized follow-up is necessary, taking into account the risk of relapse. Particular attention should be paid to maintaining quality of life, psychological support, and preventing long-term complications of therapy.

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