

## INTRATHECAL CHEMOTHERAPY FOR CANCERAMOTOSIS OF THE BRAIN MININGS.

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**Relevance.** Previously, carcinomatosis of the meninges of the brain and spinal cord was considered a rare manifestation of metastatic disease. However, leptomeningeal disease is now becoming increasingly evident as many drugs do not reach sufficient concentrations in the cerebrospinal fluid to act on tumor cells, and the number of patients is increasing due to increasing life expectancy with modern treatment [1–3]. Carcinomatosis of the meninges of the brain or spinal cord is an unfavorable factor and is associated with a poor prognosis [2, 3]. Often This is a severe category of patients with severe neurological symptoms in a state on the Karnofsky scale not exceeding 60%. These patients often receive only whole-brain irradiation. The life expectancy of patients is extremely low [2]. When conducting intrathecal therapy, according to world literature, it is possible to significantly improve the quality and increase the duration life of such patients [4]. The structure of their incidence in developed countries [1–3]. The modern strategy for treating CNS tumors is based on surgery. surgical removal of the tumor followed by chemotherapy and radiation treatment. Results of complex therapy for brain tumors brain remain unsatisfactory [4, 5]. If the average survival of patients with anaplastic astrocytomas is about 24 months, then the situation in patients with glioblastomas is much worse. According to various authors, the average life expectancy of patients in this group rarely exceeds 12 months. [6, 7]. The modern approach to the treatment of neuro-oncological patients includes all the main types of therapeutic interventions used in oncology – surgery and subsequent radiation, chemotherapy and biotherapy, which are designed to improve the quality of life and prognosis of this severe categories of patients.

At the same time, the established neurosurgical technique, which does not provide for intraoperative ablastics, forces us to look for additional ways to influence the tumor cells remaining in the wound. Radiation therapy for malignant intracerebral tumors is used in combination treatment after surgery, as well as for relapses. As an independent treatment, it is considered as palliative for contraindications to surgery.

Chemotherapy as a method of treating intracranial tumors is actively has been developed over the last 25–30 years. Its role in the complex treatment of brain tumors, as well as other ablatic methods are widely discussed in the scientific literature. Most authors are inclined to the undoubted importance of this component of complex therapy [6, 8, 9].

In chemotherapy of intracranial malignant tumors (no matter how with one other localization of neoplasms) the paths and methods of administering a therapeutic drug [10]. They are determined by the essence the formation of the blood-brain barrier as a protective-adaptive

mechanism that isolates the brain from many toxic products, often to circulating in the bloodstream. Therefore, many medicinal preparations Parathas cannot have a therapeutic effect on the tumor due to for their inability to overcome this barrier.

**Target.**To improve treatment outcomes and quality of life of breast cancer patients with carcinomatosis of the meninges of the brain and spinal cord.

### **Materials and methods**

Since 2018, we have been conducting intrathecal chemotherapy (methotrexate) patients with breast cancer with leptomeningeal metastases. The study included 25 patients. The average age was 45 years. Slightly less than half of the patients (44%) had ECOG status 3 at the time of presentation. 36% of all patients had a triple-negative tumor phenotype mammary gland. All patients received intrathecal chemotherapy according to the following regimen: 15 mg intrathecal methotrexate 2 times a week (8 injections), then 1 time per week (4 injections), then 1 time per month until progression or unacceptable toxicity. To evaluate the effectiveness, we performed

MRI of the brain and spinal cord with contrast once a month and quantitative cytological examination of the cerebrospinal fluid.

### **Results**

Improvement in neurological symptoms was observed in 60% of patients, complete neurological response

in 12% of patients. Disease control was achieved in 21 (88%) patients. Partial effect in 9 (36%), stabilization in 13 (52%). Median survival was 6.7 months. decrease in calcium concentration in the CSF,

which is a manifestation of inhibition of the functioning of the central nervous system and delay of ion-calcium by the brain, and an increase in protein concentration in the CSF, which is

manifestation of the decay of the residual part of the tumor, reflect the nature and the intensity of the impact of adjuvant chemotherapy on functional

state of the brain of patients with malignant tumors of the central nervous system,

As a result, determination of the dynamics of calcium and protein concentrations in

CSF allows individualization and minimization of intrathecal

chemotherapy and predict its effectiveness, as well as develop

the concept of “test dose” for various groups of cytostatics (

### **Conclusions**

The proposed treatment regimen for patients with breast cancer with carcinomatosis of the membranes of the brain and

spinal cord with adequate tolerance can not only improve the quality of life of patients,

due to regression of neurological symptoms, but also to increase the life expectancy of patients with extremely unfavorable prognosis. Intrathecal methotrexate may be recommended for

active use for lesions of the membranes of the brain and spinal cord in patients with breast cancer glands.

### **References**

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