Experimental Breast Cancer and Correction with an Immunostimulant

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Abstract. In the experiment, mammary cancer was induced in 21 rats. Violation of physiological processes in the liver was observed in dynamics. In the histological examinations, the architecture of the triple vessels in the liver parenchyma was disturbed, the disorders of the triple MTsG, perivascular swellings, and cholestasis processes were observed.

Key words: cancer, carcinogenesis, immunotherapy, MGTs.

It is well known that the clonal course of breast cancer (BC) varies from aggressive with rapid growth, early and extensive metastasis to relatively “benign”. It is practically important to predict the aggressiveness of the tumor already at the initial diagnosis, especially for planning adjuvant treatment. In the first case, the patient is subject to intensive systemic therapy including, for example, anthracycline antibiotics; in the second, such treatment may not be carried out or may be as gentle as possible. Therefore, attempts have been made repeatedly to search for morphological criteria that correlate with the aggressive course of the tumor, and vice versa. According to N. Bloom and Richardson, along with the histological type of tumor, there is a degree of histological malignancy, which represents a set of morphological criteria. According to the WHO expert assessment, more than 1.3 million people die from liver cancer every year in the world due to liver cancer. Metabolic disorders and excess levels of cortisol, insulin, cholesterol, and estrogen in the blood have a bad effect on the development of the tumor process “cancrophilia syndrome,” i.e. characterized by increased proliferation of somatic cells and inhibition of lymphocyte division, which cause metabolic immunosuppression, which contributes to the development of neoplasms. Because all endocrine organs are closely related to each other, and disruption of one of them affects the others.

V.M. Dilman (1983) believed that one of the pathological factors in the occurrence of cancer is an increased threshold of sensitivity of the hypothalamus to the effects of endogenous factors. The preservation of gene homeostasis and the antigenic composition of the body is carried out by the immune mechanisms of the hypothalamus. Increased metabolism of excess levels of cortisol, insulin and cholesterol in the blood affects the course of the tumor process. It is known that in systemic malignant processes, the penetration of drugs into the tumor is hampered by the hematoencephalotic barrier (BBB), as well as increased pressure of tissue fluid in tumor tissues and the perigumoral zone. 1983 Balitsky K.P. named the triad in tumor development;

➢ decreased immunological response of the organ;
➢ action of a carcinogenic factor;
dysfunction of an organ or tissue.

The tumor in its different fragments and metastatic cells is a very heterogeneous formation; all the cells are different; they quickly divide and mutate rapidly. When treating a tumor, chemotherapy is often chosen. Chemotherapy affects all metastases, no matter where they are. The exception is metastases in the brain, where not all drugs penetrate. In these cases, special treatment or special injection of drugs into the spinal canal is prescribed. There are even tumors in which the primary focus cannot be found - i.e. All we see in the body are metastases. But treatment is still prescribed and in many cases it is successfully carried out. The reasons for the occurrence of metastases in different tumors are very different; we do not yet know how exactly metastases occur. The only thing we know is that there are no “cancer stem cells”.

After chemotherapy, the patient's blood counts drop as expected. Usually the peak decline occurs on the seventh to fourteenth day, because the “chemistry” just affected all the cells that were in the peripheral blood, and the bone marrow has not yet had time to produce new ones. The drop occurs depending on the drug that is used: some of them act on certain forms, others on others. When planning treatment, usually only the presence of metastases in regional lymph nodes is taken into account, which, as is known, is the most important prognostic sign. Targeted drugs, hormone therapy, immunotherapy.

For the first time, pomegranate oil was used as an immunostimulant. This is a rare oil. The raw material is the seeds of the endemic pomegranate, which grows only in Yemen, namely the endemic island of Socatra. This oil has long been considered a strong immunostimulant.

We studied metabolic changes in the liver during a tumor process in the mammary gland over time.

**Material and methods.** For an experiment on 21 outbred male rats, metastatic breast cancer was developed by administering the drug 7,12-dimethylbenzanthracene for 18 days. 1 control group; 2-group with primary liver cancer + chemotherapy (12); Group 3 (11) chemotherapy + immunostimulant (pomegranate oil) for 21 days.

**Research results.** When analyzing histological preparations in the liver, various sized clusters of polymorphic vesicular nuclei containing 1-2 small nucleoli were found. Atypical mitoses were observed.
Severe perivascular edema is noted. The architecture of the vessels is slightly disturbed.

After adding an immunostimulant (pomegranate oil) to the treatment, the above changes clearly improved.

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