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Optimization of Immunotherapy Regime and Support Patients with Disseminated Breast Cancer Glands Receiving Systemic Chemotherapy

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Abstract: The environmental and socio-economic situation in the world has led to an intensive increase in the incidence of malignant neoplasms in almost all countries. In accordance with the purpose and objectives of the undertaken scientific search, a survey was conducted of 172 patients with disseminated breast cancer (DBC), who received palliative drug antitumor treatment in the chemotherapy department of the Republican Scientific Medical Center for Specialized Oncology and Radiology, Bukhara branch, from 2021 to 2023.

Keywords: breast cancer, chemoterapy, immunotherapy, b-lymphocytes.

Abstract: The environmental and socio-economic situation in the world has led to an intensive increase in the incidence of malignant neoplasms in almost all countries [1,3,5]. There has been a steady increase in incidence with an increase in the number of common forms [4,6,8]. Cancer incidence in Russia is steadily growing. The number of patients with malignant neoplasms makes up 1.4% of the country's population. In the structure of mortality of the Russian population, malignant diseases occupy third place and account for 13%.[30]. Very significant causes of cancer mortality in women are malignant neoplasms of the mammary glands [9,10,11]. There is an increase in morbidity and mortality from this disease throughout the world, mainly in developed countries. The wide possibilities for the participation of B lymphocytes in the destruction of transformed cells increase due to the presence of long-lived B cells, which is associated with the ability of IL4 to induce Fas resistance [15,17]. At the same time, literature data on the nature of changes in the level of various classes of immunoglobulins and circulating immune complexes in cancer patients are contradictory [14,19]. The role of antibodies in antitumor protection is twofold. They are known to be capable of carrying out cellular destruction when binding to antigens and complement. In addition, antibodies act as opsonins, increasing the efficiency of phagocytic cells. Antibodies can bind through the Fc fragment to cytotoxic lymphocytes and the target cell, participating in the implementation of antibody-dependent cellular cytotoxicity. [12.11]. On the other hand, it is possible to block killer activity mediated by T lymphocytes and antibodies, immune complexes and complexes with an excess of antigen or antibodies, respectively. Sometimes cytotoxic antibodies are produced against cancer antigens, which in the absence of antibodies not only do not kill cancer cells, but also shield them from the actions of other protective factors, for example, cellular immunity (blocking phenomenon). Despite the variety of immune defense mechanisms, they do not always fully prevent the emergence and development of tumors. The literature shows that tumor development additionally forms immunological deficiency in patients [1,2,9]. Thus, tumor cells induce polyclonal mitogens, which deplete the immune system, forcing it to produce non-specific defense factors. The neoplasm membrane, due to the proteins it synthesizes, in some cases becomes impermeable to cytotoxic

substances. The results of numerous experimental and clinical studies of the body's immunological reactions during the development of malignancy do not yet allow us to judge with sufficient certainty the specific mechanisms of antitumor immunity and its changes during the development of the tumor. In particular, studying the immunological status of cancer patients does not always make it possible to draw certain conclusions in this regard.

Material and research methods. In accordance with the purpose and objectives of the undertaken scientific search, a survey was conducted of 172 patients with disseminated breast cancer (DBC), who received palliative drug antitumor treatment in the chemotherapy department of the Republican Scientific Medical Center for Specialized Oncology and Radiology, Bukhara branch, from 2021 to 2023. The studied patients were divided into groups. The main group consisted of 123 patients who, in order to correct complications, included accompanying immunotherapy in their chemotherapy cycles. The comparison group consisted of 49 people who received only palliative chemotherapy.

Results. The average age of the examined patients was 54.0±4.2 years. In accordance with the purpose and objectives of this study, all women with disseminated breast cancer underwent laboratory diagnostics, including immunological monitoring, assessment of a complete blood count and biochemical parameters. It was carried out in the absence of exacerbations of infectious and inflammatory diseases in patients with disseminated breast cancer. The data obtained were compared with the indicators of healthy individuals, accepted as the regional norm for residents of the Bukhara region. In all groups, there was initially a pronounced increase in ESR - 5 times compared to normal values. There was a trend towards eosinophilia and lymphopenia ($p<0.05$). For other parameters, no significant differences were found between normal values and indicators in the observation groups.

The comparison group and the main group were comparable in terms of the state of the initial hemogram. Biochemical blood tests in patients included determination of the level of total protein, total bilirubin, residual nitrogen, urea, blood sugar, fibrinogen, and PTI. The listed parameters in all patients were within the physiological norm, since this was a condition for inclusion in the study Additionally, the initial parameters of the antioxidant system and the level of average mass molecules in the plasma of patients with breast cancer were determined in erythrocytes. When analyzing the state of the antioxidant system in the comparison group and the main group, there were no significant differences in the activity levels of the studied enzymes. A comparison of SOD activity revealed that in patients with breast cancer this indicator is 1.5 times higher than normal ($p <0.05$). Catalase activity was also increased compared to normal levels and amounted to 120% of the norm in the erythrocytes of patients with breast cancer ($p <0.05$). On the GPO side, there was no significant increase in enzyme activity in the main and comparison groups. In the groups of patients studied, the total content of leukocytes was slightly reduced compared to normal values.

Conclusion. The total number of lymphocytes from the norm in terms of relative content is 80.0%, in absolute terms - 68.8%. The number of mature T-lymphocytes in absolute values was reduced and amounted to 65.3% of the norm ($p <0.05$). There was a significant decrease in the absolute and relative content of T-helper cells, which amounted to 73.5% and 43.0% ($p <0.05$), respectively. The amount of T-cytotoxic/suppressor cells did not differ significantly from normal values. A 45.5% decrease in IRI (CD4+/CD8+) is associated with a predominant decrease in the number of T-helper cells. The absolute content of NK cells was reduced by 46.2% of normal ($p <0.05$).

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