

## Improved Approach to the Treatment of Resistant Breast Cancer

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**Abstract :** Background: Breast cancer (BC) is still one of the urgent oncology problems. The essential obstacle to the full anti-tumor therapy implementation is drug resistance development. Taking into account the fact that chemotherapy is main antitumor treatment in BC patients, the important task is to improve treatment results. Certain success in overcoming this situation has been associated with the use of methods of extracorporeal blood treatment (ECBT), plasmapheresis. Materials and Methods: We examined 129 women with resistant BC stages 3-4, aged between 56 to 62 years who had previously received 2 courses of CAF chemotherapy. All patients additionally underwent 2 courses of CAF chemotherapy but against the background ECBT with ultrasonic exposure. We studied the following parameters: 1. The highlights of peripheral blood before and after therapy. 2. The state of cellular immunity and identification of activation markers CD23 +, CD25 +, CD38 +, CD95 + on lymphocytes was performed using monoclonal antibodies. Evaluation of humoral immunity was determined by the level of main classes of immunoglobulins IgG, IgA, IgM in serum. 3. The degree of tumor regression was assessed by WHO recommended 4 gradations. (complete - 100%, partial - more than 50% of initial size, process stabilization-regression is less than 50% of initial size and tumor advance progressing). 4. Medical pathomorphism in the tumor was determined by Lavnikova. 5. The study of immediate and remote results, up to 3 years and more. Results and Discussion: After performing extracorporeal blood treatment anemia occurred in 38.9%, leukopenia in 36.8%, thrombocytopenia in 34.6%, hypolymphemia in 26.8%. Studies of immunoglobulin fractions in blood serum were able to establish a certain relationship between the classes of immunoglobulin A, G, M and their functions. The results showed that after treatment the values of main immunoglobulins in patients' serum approximated to normal. Analysis of expression of activation markers CD25 + cells bearing receptors for IL-2 (IL-2R $\alpha$  chain) and CD95 + lymphocytes that were mediated physiological apoptosis showed the tendency to increase, which apparently was due to activation of cellular immunity cytokines allocated by ultrasonic treatment. To carry out ECBT on the background of ultrasonic treatment improved the parameters of the immune system, which were expressed in stimulation of cellular immunity and correcting imbalances in humoral immunity. The key indicator of conducted treatment efficiency is the immediate result measured by the degree of tumor regression. After ECBT performance the complete regression was 10.3%, partial response - 55.5%, process stabilization - 34.5%, tumor advance progressing no observed. Morphological investigations of tumor determined therapeutic pathomorphism grade 2 in 15%, in 25% - grade 3 and therapeutic pathomorphism grade 4 in 60% of patients. One of the main criteria for the effect of conducted treatment is to study the remission terms in the postoperative period (up to 3 years or more). The remission terms up to 3 years with ECBT was 34.5%, 5-year survival was 54%. Carried out research suggests that a comprehensive study of immunological and clinical course of breast cancer allows the differentiated approach to the choice of methods for effective treatment.

**Keywords :** breast cancer, immunoglobulins, extracorporeal blood treatment, chemotherapy

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