Contemporary Principles of Innovative Approaches to Breast Cancer Treatment

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Relevance: Comprehensive treatment of breast cancer involves a combination of therapeutic modalities determined by the molecular subtype of the disease, including surgery, radiation therapy, and systemic drug treatment. Recent advances in molecular biology have significantly contributed to reducing the risk of metastasis, thereby improving both the survival and quality of life of patients with breast cancer. One of the key priorities of modern clinical oncology is the implementation of function-preserving and organ-conserving treatment strategies. A fundamental principle of functional preservation is the integration of oncoplastic and reconstructive plastic surgical techniques into tumor resection, along with the effective incorporation of surgical rehabilitation at different stages of treatment. This approach not only enhances cosmetic and functional outcomes but also contributes substantially to maintaining patients' quality of life.

Materials and Methods: The study included women registered for regular follow-up at municipal and district outpatient clinics of the Bukhara region who attended the Central Outpatient Clinic, Examination, and Consultation Department of the Bukhara Branch of the Republican Specialized Scientific and Practical Medical Center of Oncology and Radiology. A total of 1,456 women aged 25–65 years with breast cancer, who were referred following preventive screening between 2020 and 2023, were examined. From this cohort, 120 patients were enrolled in the present study. Overall, 150 women were included under observation: 120 patients with breast cancer who received neoadjuvant polychemotherapy (NACT) and 30 healthy female volunteers without breast cancer who served as the control group.

Results: The application of comprehensive therapy resulted in significant cytomorphological changes in breast cancer tissue. Cytological examination performed using Romanowsky–Giemsa staining at ×200 magnification (10×20) revealed several notable findings. The cell nuclei appeared enlarged, although the nuclear structures were poorly distinguishable, indicating reduced cellular activity. No atypical nuclei were detected, which represents a favorable therapeutic response. The number of epithelial cells was markedly reduced due to treatment-induced pathomorphosis, and

the proportion of multinucleated cells also decreased. Furthermore, atypical cells were largely replaced by adipocytes (fat cells), suggesting tissue remodeling and regeneration. These cytomorphological changes indicate a positive therapeutic response and may be interpreted as evidence of disease remission.

Conclusion: Neoadjuvant therapy is used in patients with initially unresectable breast cancer to reduce tumor size and improve the feasibility of surgical treatment. In the present study, we evaluated the efficacy of neoadjuvant therapy administered in combination with the biologically active dietary supplement *Spirulina*. This combined therapeutic approach produced favorable cytological outcomes, particularly in patients with early-stage breast cancer. Comprehensive therapy had a beneficial effect on the cytological characteristics of the tumor: the proportion of atypical cells decreased from 25.34% to 8.23%, whereas the proportion of epithelial cells increased from 74.43% to 82.71%. Moreover, remission was achieved in 25% of patients with early-stage breast cancer and in 11% of patients with more advanced disease following the combined treatment regimen.

References

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