CURRENT APPROACHES IN BIOTHERAPY OF ONCOLOGICAL DISEASES

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Introduction. Oncological diseases are responsible for the failure of the body to produce a complete immune response against the tumor due to its lack of immunogenicity. Most of the currently available methods of cancer treatment (surgery, chemotherapy, radiation therapy) also induce cell immunosuppression, which contributes to recurrence of cancer. Understanding the role of oncogenes and their products in the malignant transformation of cells, the mechanisms underlying the anti-tumor immunity failure, the biological nature of drug resistance necessitates the implementation of methods that can strengthen endogenous mechanisms of antineoplastic defense.

Aim. Carry out an analytical review of the most promising methods of biotherapy of oncological diseases.

Materials and methods. Data analysis of literature and Internet sources.

Results and discussion. Immune system is the main point of biotherapy application, which is based on the activation of protective mechanisms or introduction of natural polymer molecules (cytokines, growth factors, etc.). Currently, the main hope of biotherapy in cancer is associated with vaccine therapy, gene therapy, virotherapy (oncolytic viruses), the use of cytokines and monoclonal antibodies. At that the use of viruses as anticancer agents is considered to be a highly promising method. Scientists discovered a new facet of biological features of viruses, which have always been regarded as disease-causing agents, namely their vector, immunomodulating and anti-tumor functions. Researchers suggest mainly natural attenuated strains of viruses as therapeutic agents against cancer, such as viruses of influenza, Newcastle disease, herpes and various recombinant viruses, derived from natural ones by genetic engineering.

Conclusions. Such manifestations of viral infections as cytolytic activity, induction of new or modifications of existing antigens of the tumor cells, viral immunogenesis reproduction of viruses by budding (transfer of tumor antigen), interferonogenesis, increase in the sensitivity of tumor cells to therapeutic effects and endogenous antitumor mechanisms that allow us to consider the use of virotherapy a promising approach to immunotherapeutic effect on tumor growth.