ASSESSION OF INTERFERONS AS THE THERAPEUTIC DRUGS

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Interferons are proteins that consist of 146-166 amino acid residues organized in the polypeptide chain. They are synthesized by mammalian cells in response to viral infection and provide nonspecific antiviral immunity. Their biosynthesis in response to the penetration of a viral infection is one of the fastest organism's reactions. Interferons are the first line of defense against a viral attack. Besides, interferons are the family of cytokines regulating innate and adapted immunity. This is the reason for using these molecules as an attractive target for immunomodulation therapy.

The aim of the present study was to perform a comparative analysis of interferon-containing drugs on the Ukrainian market. Results of the performed comparison showed that on the Ukrainian market there are three main classes of interferons drugs - alpha, beta, and gamma -which are differing by their amino acid sequences, physicochemical properties, and induction by different agents such as viruses, bacteria, bacterial products, polymers, low molecular weight compounds. Major players in the world interferons market are Roche, Merck, Novartis AG, Pfizer Inc, Nanoge, and others. In Ukraine, interferon-containing drugs are produced by BioPharma, Valartin pharma and etc. The pharmaceuticals are presented mostly as the recombinant human interferon-alfa or interferon-beta and used as antiviral medicines. Interferon-gamma is also presented as a recombinant molecule with antiviral, immunomodulating, and antitumor activity. Using interferon-containing drugs as crucial elements of cellular defense mechanisms in humans has revealed their clinical effectiveness against viral infections, cancer, and neurodegenerative diseases by inhibiting virus replication, decreasing tumor cell mass, or controlling disease symptoms, and prolonging survival.

All these data suggest the global increase of the interferon drugs market in the nearest future due to growing numbers of incidence of various virus diseases, including respiratory viruses: coronaviruses, flu, and diseases as cancer, and multiple sclerosis. Thus, it is considered using interferon in combination with other drugs as the perspective direction of therapeutics.