RESULTS AND PROSPECTS OF USING INTERFERON INDUCERS IN THE TREATMENT OF INFECTIOUS DISEASES

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Annotation: The modern classification of interferon inducers of various chemical groups related to antiviral agents is presented; the mechanisms of synthesis of different types of endogenous interferon in blood serum are described. The effectiveness of methylglucamine acridonacetate in the complex treatment of chronic hepatitis C, tuberculosis against HIV infection, chronic brucellosis, arbovirus diseases, including West Nile fever, as well as influenza and acute respiratory infections has been demonstrated. For the successful treatment of acute and chronic diseases, endogenous interferon inducers should be used as early as possible, at an average level of viremia, to enhance the effect of targeted etiotropic drugs and immunomodulators, which ensures optimal pharmacotherapeutic effect.

Keywords: respiratory infections, intoxication syndrome, infections and influenza

Аннотация: Представлена современная классификация индукторов интерферона различных химических групп, относящихся к противовирусным средствам; описаны механизмы синтеза различных типов эндогенных интерферонов в сыворотке крови. Показана эффективность метилглюкамина акридонацетата в комплексном лечении хронического гепатита С, туберкулеза на фоне ВИЧ-инфекции, хронического бруцеллеза, арбовирусных заболеваний, в том числе лихорадки Западного Нила, а также гриппа и острых респираторных инфекций. Для успешного лечения острых и хронических заболеваний эндогенные индукторы интерферона следует применять как можно раньше, при среднем уровне виремии, для усиления действия таргетных этиотропных препаратов и иммуномодуляторов, что обеспечивает оптимальный фармакотерапевтический эффект.

Ключевые слова: респираторные инфекции, интоксикационный синдром, инфекции и грипп.

The ability of the inducer to induce the synthesis of IFN in a particular tissue plays a key role in the distribution of IFN in the body. Thus, when the sodium salt of ds-RNA and Larifan is administered, IFN is detected in the muscles, spleen and brain of animals, while the maximum concentration is reached 4-8 hours after taking the drug. In the liver, lungs and blood serum, the maximum accumulation is observed only after 48 hours, and the concentration of IFN in the lungs, liver, brain and spleen is 4-8 times higher than that in the blood serum.

Currently, the problem of qualitatively new approaches to the prevention and treatment of influenza and acute respiratory infections (ARI) is becoming obvious, since vaccination against influenza cannot protect against the causative agents of ARI, and an increase in the number of cases of resistance to direct-acting antiviral drugs significantly affects their effectiveness. Due to the fact that the immune response to the airborne antigen, which determines to a large extent the outcome of the disease, depends on the complex interaction of factors of natural (innate) and adaptive (acquired) immunity, the use of drugs that affect its quality, and, in particular, AI, is justified. However not all inducers are able to protect the body from the influenza virus to the same extent: the resulting IFN does not have time to "cover" the body from a rapidly developing (acute) infection.

The etiotropic effect of Cycloferon in combination with ribavirin has been confirmed in the treatment of patients with Crimean hemorrhagic and Astrakhan rickettsia fever. It consisted in reducing the number of cases of severe forms of the disease, minimizing intoxication syndrome. When using this combination, there is an early resolution of hemorrhagic syndrome, a decrease in the frequency of complications due to the stimulation of non-specific mechanisms that activate the metabolic activity of phagocytes, which makes it possible to increase the effectiveness of treatment.

Interferons belong to cytokines (mediators of immunity) and are represented by a family of proteins with antiviral, immunomodulatory and other types of

activity. Representatives of the IFN family make up important inducers of the natural antiviral response, influencing the process of adaptive immune response by recognizing and eliminating foreign genetic information. The IFN system is characterized by rapid response, being one of the most important components of natural immunity, largely determining the course and outcome of viral infections.

The range of interferon-inducing doses differs in drugs belonging to different classes of compounds. Thus, the maximum interferon-inducing activity of polynucleotides (Ampligen, Polyguacil) was established at a concentration of drugs equal to 25-50 mcg/ml, and gossypol derivatives (Kagocel, Savrac) carry out the maximum induction of IFN synthesis at a dose of 125-150 mcg/ml. The ability of the inducer to induce the synthesis of IFN in a particular tissue plays a key role in the distribution of IFN in the body.

Cycloferon provided minimization of intoxication syndrome, catarrhal syndrome, normalized the temperature reaction on the 4th day of taking the drug without the use of antibacterial agents, the frequency of cases and duration of acute respiratory viral infections and influenza decreased. A pronounced cytoprotective effect on the nasal mucosa was shown, the destruction of neutrophils, flat cylindrical epithelium, and lymphocytes decreased. The content of sIgA in the oropharyngeal fluid increased 4.5 times, remaining at a high (410.62 mg / l) level after 1 month, the level of lysozyme increased after taking Cycloferon by 24.2%.

In the coming years, the widespread spread of hepatotropic viral infections and a steady increase in the number of patients with chronic hepatitis are predicted. 7-16% of patients develop cirrhosis of the liver with the natural course of HCV infection after 8-16 years, 1.3% of cases develop hepatocellular carcinoma, and 3.7% of patients die due to progressive liver damage. In the outcome of chronic hepatitis C, most patients develop cirrhosis of the liver, and 15% of patients die.

Cycloferon in combination with Ribavirin in arbovirus infections reduce the number of cases of severe forms of the disease, minimize intoxication syndrome, there is an early resolution of hemorrhagic syndrome, a reduction in the frequency of complications due to stimulation of nonspecific mechanisms that activate the

metabolic activity of phagocytes, allowing in the complex therapy of arbovirus infections to increase the effectiveness of therapy.

The interferon-inducing activity of any inducer of t t\o is determined by the affinity of a particular drug to the receptors of a particular population of immunocytes. In response to a specific inducer, various cells of the immune system can participate in the synthesis of IFN, but some inducers have the unique ability to "turn on" IFN production only in certain cell populations, which is an advantage over polyclonal stimulation of immunocytes with interferon.

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