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MODERN VIEWS ON ACUTE RESPIRATORY VIRAL INFECTIONS

Abstract: *Means of etiotropic therapy are directed against the causative agent of the disease, in this case against respiratory viruses. Specific antiviral drugs act directly on the causative agent of the infection, preventing its reproduction in the body. One of the approaches to the treatment of SARS and influenza is the use of drugs that have several points of application and have a combined effect, which combine direct antiviral, immunomodulatory and symptomatic action.*

Key words: *acute respiratory viral infections, ARVI, influenza virus, prevention, antiviral drugs.*

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СОВРЕМЕННЫЕ ВЗГЛЯДЫ НА ОСТРЫЕ РЕСПИРАТОРНЫЕ ВИРУСНЫЕ ИНФЕКЦИИ

Резюме: Средства этиотропной терапии направлены против возбудителя заболевания, в данном случае против респираторных вирусов. Специфические противовирусные препараты воздействуют непосредственно на возбудителя инфекции, препятствуя его размножению в организме. Один из подходов к терапии ОРВИ и гриппа заключается в применении препаратов, имеющих несколько точек приложения и обладающих комбинированным действием, которые сочетают в себе прямое противовирусное, иммуномодулирующее и симптоматическое действие.

Ключевые слова: острые респираторные вирусные инфекции, ОРВИ, вирус гриппа, профилактика, противовирусные препараты.

Acute respiratory viral infections (ARVI) of various etiologies and influenza, according to WHO, as before, occupy one of the first places among all infectious diseases. These nosologies account for about 90-95% of all cases of infectious diseases. In the Russian Federation, about 30 million people suffer from influenza and SARS of other etiologies every year, and the annual economic damage is estimated at about 40 billion rubles [1]. The scientific community of scientists around the world is concerned about the low effectiveness of vaccination and the increasing resistance of pathogenic microorganisms to antiviral drugs currently available to practicing physicians. In this situation, the search for new methods for the prevention and treatment of acute respiratory viral infections, adequate control of influenza epidemics and pandemics, and evaluation of the effectiveness of the drugs used are relevant. The contribution of domestic scientists to the creation of antiviral drugs is quite significant.

Currently, more than 200 types of viruses are known to cause SARS. The intensity, frequency and dominance of certain respiratory viruses depend on the time of year and climatic features.

The most common influenza viruses, parainfluenza, adenoviruses, coronaviruses, human metapneumovirus, respiratory syncytial virus, human rhinoviruses, bocaviruses. In addition, in recent years, enteroviruses (ECHO, Coxsackie), reoviruses, Epstein-Barr virus, etc. have become the cause of ARVI more often — they themselves can cause damage to the respiratory tract or act as additional pathogens in the most common viruses [2–3].

Regardless of the causative agent, the upper respiratory tract is the entry gate and localization site for infection, where the most intensive reproduction of viruses occurs in epithelial cells. ARVI pathogens are spread by airborne droplets - when coughing, sneezing, talking and through contaminated household items. The duration of survival of respiratory viruses in the external environment is from 7 to 12 days.

Diagnosis of influenza and SARS

The main methods of laboratory diagnostics recommended on the territory of the Russian Federation include the following: - polymerase chain reaction - based on the detection of RNA or DNA of viruses; - immunofluorescent and enzyme immunoassay of smears from the nasal cavity or from the back of the pharynx; – immunochromatographic test for express diagnostics of influenza directly during examination of a patient [9–10]; - virological method (obtaining a culture of the pathogen); – serological diagnostics (determination of the titer of specific antibodies in paired sera). The etiological diagnosis of influenza and SARS should be carried out in the following cases: - Hospitalization of a patient for an acute respiratory tract infection; - diseases of people with a high risk of adverse outcome - children under 1 year old, pregnant women, people with chronic diseases; – registration of ARVI foci with multiple cases of diseases in organized groups of children and adults with a round-the-clock stay [11]. The clinical picture of ARVI varies significantly depending on the etiology of the pathogen, the state of the immune system, the age of the patient and the presence of concomitant pathology. But in the vast majority of influenza and ARVI, three main syndromes can be distinguished - intoxication, catarrhal and hemorrhagic [12]. Symptoms that

occur in the first days and hours of the disease are due to the development of a local inflammatory reaction at the gates of infection. Further development of symptoms depends on the activity of innate immunity factors and the speed of launching highly specific immune responses aimed at the complete elimination of the virus. Sometimes there is an excessive local inflammatory reaction, which leads to massive death of surrounding tissues and viremia, resulting in such formidable complications as pulmonary edema, infectious-toxic shock, acute respiratory distress syndrome, multiple organ failure. Thus, even in the presence of the usual symptoms of SARS from the first hours, it is advisable to prescribe a combination of antiviral and pathogenetic drugs (anti-inflammatory and antioxidant).

Treatment Means of etiotropic therapy are directed against the causative agent of the disease, in this case against respiratory viruses. Specific antiviral drugs act directly on the causative agent of the infection, preventing its reproduction in the body. All medicines for the treatment of influenza and SARS, registered on the domestic market, are conditionally divided into 3 groups: 1) localizing the infection at the entrance gate (on the mucous membranes of the respiratory tract); 2) having a direct antiviral effect; 3) suppressing the defense mechanisms of the microorganism and indirectly providing an antiviral effect.

Conclusion

To date, there is no universal antiviral drug that can protect against all pathogens responsible for the occurrence of influenza and other acute respiratory viral infections, since viruses, due to their variability, develop resistance over time. This is the reason for the need for drugs that do not act on a specific protein of the virus, but have a complex effect on the cellular and humoral immune mechanisms of antiviral protection.

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