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# CLINICAL EFFECTIVENESS OF THE DRUG VIFERON IN PREGNANT WOMEN WITH ACUTE RESPIRATORY INFECTION

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**ABSTRACT:**Acute respiratory diseases of a viral nature are determined by their prevalence, uncontrollability, high contagiousness, and the development of transient immunodeficiency states after the illness. In the presence of transient immunodeficiencies, there is a tendency to develop recurrent or chronic inflammatory diseases of the ENT organs. Among complications of acute respiratory infections (ARI) in adults, paranasal sinusitis takes first place [1].

**Key words:** infection, pregnancy, complications, sinusitis, progesterone, otitis media, ARI, Viferon

It is generally accepted that one of the most important universal factors in protecting the body from viral infections is the interferon system. The antiviral effect of interferons is to suppress the reproduction of viruses at the level of synthesis of virus-specific proteins, which leads to the destruction of foreign genetic information (information ribonucleic acid) [1]. Assessing the disruption of interferonogenesis, a key link in the pathogenesis of respiratory infections, in the midst of influenza and acute respiratory infections of other etiologies and the decrease in the level of interferons in the blood serum and nasal washes allows us to substantiate and improve approaches to interferon therapy, including the development of its modified methods [2].

During pregnancy, an excess of Th2 lymphocytes develops, partly due to the induction of IL-4 synthesis by progesterone.[3] The cell-mediated immune response is suppressed. Immunosuppression, both systemic and local, is realized through a number of hormones and cytokines (IL-4, IL-10 and TGF-beta). During pregnancy, the activity of natural killer cells progressively decreases and is restored 6–10 days after birth [4].

Thus, changes that have arisen in various parts of the immune system are one of the main factors in the implementation of viral infection in pregnant women, and, as a result, lead to the development of bacterial complications, which constitute a considerable problem due to the impossibility of full diagnosis and drug treatment.

**MATERIALS AND METHODS:**In the period from December 2022 to March 2023, 49 pregnant women at a gestation period of 18–25 weeks who suffered an acute respiratory infection during outpatient treatment under the supervision of an otolaryngologist, therapist and obstetrician-gynecologist were examined. Depending on the age of onset of the disease, all pregnant women were divided into 3 groups.

The first group consisted of 24 pregnant women who were admitted on the first day of the disease and received basic therapy for ARI in combination with intranasal administration of the drug VIFERON, a gel that was prescribed in the first 24 hours from the onset of the disease 3 times a day for 10 days. It was proposed to inhale the gel with the nose from the surface of the spatula in a volume of 1 ml containing 36,000 IU of human recombinant interferon alpha-2. Within 10 minutes, with patients lying on their backs, the gel spread to the mucous membrane of the nasal cavity, nasopharynx and posterior pharyngeal wall.

Group 2 included 10 pregnant women who applied 48–72 hours after the onset of ARI. They received basic therapy in combination with the drug VIFERON, gel, intranasally (according to the scheme indicated above) and 3 times a day for 10 days VIFERON, rectal suppositories, 500,000 IU, 2 times a day for 7 days, then 500,000 IU 2 times a day, every other day, – 6 suppositories.

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The third (control) group consisted of 15 women who received only basic therapy:

Rinsing the nasal cavity with natural sterile isotonic sea water 3-4 times a day, 7-10 days.

Treatment of the nasal cavity and pharynx with Miramistin solution 3–4 times a day, 7–10 days.

0.05% vasoconstrictor nasal drops (according to indications) 2-3 times a day, 5 days.

Gargling with a decoction of chamomile, calendula, sterile isotonic sea water or Miramistin 4-5 times a day, 5-7 days.

Systemic antibacterial drugs of the penicillin series, in case of development of bacterial complications of the ENT organs.

In these groups of patients, the severity of intoxication and catarrhal syndromes was compared from the moment of treatment until recovery based on complaints and data from an instrumental examination by an otolaryngologist. The ENT examination included anterior rhinoscopy, mesopharyngoscopy, and indirect laryngoscopy. When examining regional lymph nodes, the size, consistency, pain, and change in skin color over the lymph nodes were recorded. According to objective and subjective examinations, the severity of ARI was assessed as mild, moderate and severe.

Diagnosis was carried out by PCR in the first 72 hours from the onset of clinical symptoms. Collection of clinical samples from the nasopharyngeal mucosa was carried out with a flexible velor swab after preliminary clearing of the nasal cavity from mucus in order to obtain desquamated epithelial cells of the nasopharyngeal mucosa. Samples were frozen and transported for further detection and identification of respiratory viruses using multiplex real-time PCR (RT-PCR). This PCR test system with real-time detection allows you to simultaneously identify in clinical samples the main causative agents of human respiratory viral infections - influenza A and B viruses (HAV and HBV), parainfluenza viruses types 1, 2, 3, 4 (HSV 1, 2, 3, 4), adenoviruses (ADV), respiratory syncytial virus (RSV), rhinoviruses (RV), enteroviruses (EV) and coronaviruses. Bacterial complications from the upper respiratory tract and ENT organs that arose as a result of an acute respiratory infection were diagnosed based on an objective examination and instrumental examination. Due to the impossibility of performing an X-ray examination of the paranasal sinuses during pregnancy, the diagnosis of acute purulent sinusitis was made in the presence of purulent discharge in the middle nasal passage and/or purulent discharge obtained as a result of a diagnostic puncture of the maxillary sinuses.

**RESULTS:**In the clinical picture of the course of ARI in most pregnant women, symptoms of intoxication were manifested by an increase in temperature no higher than 37.6 °C (in 87.7%), chills (in 12.2%), sweating (in 57%), throbbing pain in the temporal region (in 18.4%), enlarged lymph nodes (26.5%). Pregnant women of all groups had complaints from the ENT organs: a feeling of dryness, burning in the nasopharynx on day 1 of the disease - in 79.6%, serous discharge from the nose on days 2-3 of the disease - in 26.5% (of which in 22.4% - severe rhinorrhea), difficulty in nasal breathing - in 81.6%, a feeling of tickling, pain in the throat when swallowing - in 79.6%, complaints of a dry cough within 1-2 days of the disease - in 8 .3% of pregnant women. Anterior rhinoscopy revealed: swelling of the nasal mucosa - in 81.6%, hyperemia of the nasal mucosa - in 67.3%, mucous discharge in the middle nasal passage - in 26.5%; Pharyngoscopy revealed injection of the vessels of the soft palate - in 81.6%, hyperemia of the pharynx - in 100% of pregnant women.

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According to PCR data, respiratory infection of viral etiology was determined in 40.8% of observed cases. At the same time, coronaviruses were detected in 35% of positive samples, rhinoviruses amounted to 10%, RSV – 10%, HSV – 2%, HAV – 5%.

In patients of group 1, a mild course of acute respiratory disease was established, the symptoms of which were relieved by the end of the third day. Paranasal sinusitis was diagnosed in 16.7% of pregnant women with negative PCR tests for the viral etiology of ARI.

Pregnant women of group 2 had a moderate course of acute respiratory infection, the symptoms of which disappeared by the end of 5 days. In 40% of pregnant women, acute purulent sinusitis was diagnosed on the 5th day from the onset of the disease, in half of the cases accompanied by acute purulent otitis media. In this group, bacterial complications were most common among patients who had ARI with an unconfirmed viral etiology - in 75% (with an identified causative agent of a respiratory viral infection - in 25%).

In the 3rd (control) group, which received only basic therapy, without VIFERON drugs, a moderate course of acute respiratory infection was noted, the symptoms of which also stopped by the end of 5 days. However, complications in the form of acute purulent sinusitis were diagnosed on the 5th day from the onset of the disease in 53.3%. In this group, bacterial complications occurred equally in both patients who had ARI of viral etiology and in patients with ARI caused by other pathogens.

**CONCLUSIONS:**Based on the studies conducted, it can be established that the use of the drug VIFERON, gel, in the first 24 hours from the onset of ARI helps to reduce the development of bacterial complications in the upper respiratory tract, as well as a milder clinical course of the disease. When pregnant women treated later than 48 hours from the onset of ARI, when prescribing VIFERON gel and VIFERON rectal suppositories, complications from the upper respiratory tract were registered within 30%, while in pregnant women who received only basic therapy, ARI complications were recorded in 46.7% cases. Therefore, it is promising to prescribe the drug VIFERON in the form of a gel both at the early stage of development of ARI, and for prophylactic purposes in contact with patients with a respiratory infection.

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