

NEW APPROACHES TO PREVENTION AND THERAPY OF ACUTE RESPIRATORY INFECTIONS IN INFANTS, LIVING IN INFANT ORPHANAGES

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Summary. Pupils of infant orphanages are the most susceptible to acute respiratory infections (ARI) category of children. The increased morbidity of this patient population is associated with multiple deviations in the state of health and a violation of body defenses. The efficacy and safety of Immunoflazid in prevention and treatment of ARI in pupils at infant orphanages was studied. Clinical efficacy of the drug in the treatment and prevention of ARI in infants was proved.

Key words: acute respiratory infections, infants, Immunoflazid.

Introduction

The most common infectious diseases in children are acute respiratory infections (ARI) [2]. But the etiological structure of ARI is 70-75% represented by viruses (parainfluenza viruses of types 1 and 3, respiratory syncytial virus, rhino-, enteroviruses, influenza viruses, etc.), 16-23% by bacteria (*Str. Pneumoniae*, *Str. Pyogenes*, *H. influenza type b*, *Moraxella catarrhalis*, *Staphylococcus spp.*, *Gram-negative cocci*, etc.), about 1% is attributable to intracellular pathogens (*M. pneumonia*, *Chl.pneumonia*, *Chl. trachomatis*, etc.) Fungi (*genera Candida n Aspergillus*), protozoa (*Pn. carini* and *Pn.jieroveci*), and their associations [3,5].

The incidence of ARI in children, especially infants, in epidemic seasons remains high. One of the risk groups that initiates the rise of respiratory tract diseases is children's groups, including closed ones.

Especially important is the prevention of ARI in children who are brought up in the infant orphanages, which is due to the large number and low health of this patient population. According to official statistics, more than 100,000 children of different ages are deprived of parental care in Ukraine [6]. Only in infant orphanages in the Donetsk region there are more than 500 [1], and only 5% of them are relatively healthy [4]. Pupils of infant orphanages in comparison to children from families are significantly more likely to have congenital heart defects (11.3% of cases - more than 10 times more often than children living with parents) and vascular anomalies (8% 6 times more often than children from families); chronic nutritional disorders (more than 91% of children - 5 times more often); atopy and allergies (75% of children at infant orphanages more than 1.5 times more likely); anemia (66% of cases, 3.9 times more often).

Such a premorbid state leads to a higher incidence of ARI in children, who are brought up in infant orphanages, up to 97% of which are in the group of patients with long-term illness: the incidence (7.76 ± 2.46 cases of ARI per year) is almost 5 times higher than in relatively healthy peers from families (1.57 ± 0.16) and almost 2 times higher than the similar index of the often and long-term ill children in the group who are brought up in families (4.01 ± 2.09); the average duration of 1 case (13,17 ± 5,02 days) also exceeds the number of sickly children in children from families (10.07 ± 3.86) and their relatively healthy peers (4.97 ± 2.35). Also, complications are much more common: in 71% in children from infant orphanages, in 39% in sickly children from families, in 19.6% in relatively healthy children from families.

Such a high morbidity makes it possible to suggest changes in the immune system and the synthesis of interferon in these children. Our studies have shown that significant changes are determined in all parts of the immunity: in the cellular - against a background of increasing the level of mature T-lymphocytes and activation of the suppressor-cytotoxic population, a decrease in the content and activity of natural killers; in humoral - hyperimmunoglobulinemia IgG, IgM, IgA is detected associated with a decrease in the content of mature B-lymphocytes. The most interesting changes in the system of phagocytosis: with an increase in the phagocytic number, a decrease in the percentage of phagocytic cells and the rate of completion of phagocytosis has been detected. Significant changes were observed in the synthesis of the interferon: an increased level of IFN-γ was detected associated with a decrease in IFN-α.

Thus, the changes in the health state of children, who are brought up in infant orphanages, the peculiarities of the course of ARI (the frequency, duration and number of complications is much higher than in children from families), changes in the immunity system, the synthesis of interferons α and γ determine the need for an integrated approach to the prevention of ARI in these children.

The polyethiologic nature of respiratory infections does not allow us to confine ourselves to using only specific vaccine preparations, but dictates the necessity of using and creating various non-specific means of protection for the control of these diseases.

Our attention was attracted by Immunoflazid ("SMC" Ecopharm", Ltd.). It is a natural herbal drug, it does not contain sugar, food dyes, flavor additives, is used from the first days of life, is available as a syrup of 50 and 125 ml with a dispenser, belongs to the group of cytokines and immunomodulators, prevents the penetration of viruses of influenza and ARVI into the human body, prevents the reproduction of viruses of influenza and ARVI, increases body defenses. It suppresses the activity of neuraminidase, which makes it impossible: penetration of the virus into the body through the mucous membrane of the respiratory tract; the release of the virus from the affected cell for subsequent infection of healthy cells and reproduction. Immunoflazid stimulates the synthesis of interferons (α and γ), stops the multiplication of viruses by blocking the synthesis of viral RNA.

The goal of the study was to determine the effectiveness, safety and rationale for the use of Immunoflazid for prevention and treatment of ARI in infants based on clinical and epidemiological data.

Material and methods of the study

The study was conducted in the autumn-winter period on the basis of the regional Infant orphanage in Donetsk. The study included 80 children aged 6 months to 4 years. The first group (28 people) consisted of children who fell ill with ARI and were provided Immunoflazid with therapeutic purpose, the second group included children (27 people) who had no signs of respiratory infection and received Immunoflazid as a prevention means. The control group (25 children) included healthy children.

Exclusion criteria from the study included the use of other antiviral prophylactic drugs, vaccination against influenza, concomitant severe pathology (immunodeficiency conditions, severe congenital malformations, etc.), exacerbation of chronic diseases.

Immunoflazid was prescribed according to the scheme depending on the age: for children from birth to about a year - 0.5 ml 2 times a day, children from 1 to 2 years - 1 ml 2 times a day, children aged 2 to 4 years - from the 1st to 3rd day - 1.5 ml 2 times a day; from the 4th day - 3 ml 2 times a day. For the prevention of ARI, the drug was administered for 7 days, for treatment of ARI - 14 days.

A comparative assessment was made of the incidence of ARI in a group of children who were administered Immunoflazid for preventive purposes and a control group (children who were not administered the drug). An analysis was made of the severity and dynamics of the disease between a group of ill children who were administered the drug for treatment, a group of children who were administered Immunoflazid for prevention, and a control group. For two months after the end of the drug administration, follow-up care of children (repeated diseases, severity of the disease) was carried out.

The results of the research and their discussion

Analysis of the incidence of ARI in the group of children who were administered Immunoflazid as a prevention course, in comparison with the control group is presented in Table 1.

Table 1

Incidence of ARI in study groups			
Group	Number of children (n)	Total number of patients with ARI	
		abs.	%
Second	27	6	22.2
Control	25	14	56.0

Table 2

Assessment of severity of ARI in children of study groups			
Group	Total number of patients with ARI	Form of ARI	
		Nasty form	Mild form

	abs.	%	abs.	%	abs.	%
First	28	100	11	39.3	17	60.7
Second	6	22.2	-	-	6	22.2
Control	14	56	8	57.1	6	42.2

As can be seen from Table 1, associated with weekly administration of Immunoflazid, the number of patients with ARI was 22.2% (n = 6) of children, while in the control group, 56.0% (n = 14) of children fell ill during the monitoring period. Thus, in the epidemics, the use of Immunoflazid enables to protect against the disease 77.8% of young children.

During follow-up for two months, it was noted that 6 children (5 years of age and 1 year and 2 years and 3 months) fell ill from the group of children provided Immunoflazid for prevention purposes. Three cases of the disease were registered in the fourth week after the end of the preventive course of the drug and three cases in the fifth week. In all ill children, ARI proceeded in mild form.

In the course of clinical observation, we considered it necessary to analyze the severity and duration of ARI course in the observed children (Table 2).

As can be seen from the data in Table 2, in the group of children provided Immunoflazid for prevention purposes, ARI proceeded in a mild form, no severe course was observed. In children of the control group, severe ARI was reported twice as often as in children of the second group. It should be noted that in children of the second group the duration of ARI course averaged 3.3 ± 0.7 days, and clinically they had catarrhal manifestations associated with subfebrile temperature, which were stopped by the end of the fourth day. While in the control group, duration of ARI was 9.7 ± 1.6 days, which was due to the development of complications (otitis media, bronchitis).

Analyzing the measures of the children of the first group (who were administered Immunoflazid as a therapeutic course), it should be noted that the inclusion in the therapy of the drug led to a decrease in the frequency of severe forms and complications, a positive dynamics of the disease was observed from the third day of treatment. Allergic reactions and disorders of the gastrointestinal tract are not reported.

Conclusions

Thus, associated with the use of Immunoflazid, there was a 2.3-fold decrease in the incidence of ARI. During the clinical study, the drug showed a sufficiently high preventive effect in young children. In the case of the appearance of the first symptoms of ARI disease, the use of Immunoflazid is recommended for 14 days, which leads to a decrease in the duration and severity of the disease. The safety of the drug was noted.

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