Anaferon (Pediatric Formulation) in Prophylactics of Acute Respiratory Viral Infection in Children

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Prophylactic treatment with anaferon (pediatric formulation) in children groups reduced total morbidity and incidence of acute respiratory viral infections and shortened the duration of fever, intoxication, and catarrhal syndromes. No allergic and other reactions caused by administration of the preparation were noted.

Key Words: *anaferon (pediatric formulation); acute respiratory viral infection; rotavirus infection; adenoviral infection*

Infection of upper airways in sickly children is a serious problem for health care institution because of economic damage to individuals and society in whole. Russian experts estimated the mean expenditures during one influenza outbreak in 50 billion roubles.

Children are most susceptible to unfavorable environmental influences [4,6]. In light of this, the problem of prophylactic treatment of secondary imunodeficiencies in children becomes very important. The armory of drugs used for the treatment of acute respiratory viral infections (ARVI) are now rapidly extending, which makes difficult the choice of adequate therapy [2,5].

The aim of the present study is the search for methods of optimal prevention of general morbidity, incidence of ARVI, and diseases accompanied by diarrhea in children collectives.

MATERIALS AND METHODS

A total of 104 patients aging 4 years were included in the study. Children receiving no prophylactic treatment comprised the control group (n=51). The main group included 53 children receiving two prophylactic treatment courses (from January to March and from August to October) with anaferon (pediatric formulation, AP) [1].

Etiology of the disease was evaluated using the following laboratory methods: adeno- and rotavirus infections were detected by the method of latex agglutination (Veda Lab.); intestinal disbiosis, acute shigellosis, acute intestinal infection (AII), and lambliasis were diagnosed using bacteriological and serological methods.

Children of the main group received AP according to the following scheme: 1 tablet every 30 min over the first 2 hours and then 3 more tablets with equal time intervals before night sleep during day 1 and 1 tablet once a day starting from day 2 for 3 months. In case of disease, the initial dose was given (day 1) and starting from day 2 AP was administered in the therapeutic dose (1 table 3 times a day); after disappearance of the main symptoms of the disease, the prophylactic scheme was resumed.

Statistical analysis of the total and nosology-related morbidity and the mean duration of hospital treatment was performed during dynamic observation against the background of prophylactic treatment with AP. Morbidity was analyzed using medical records, morbidity index was calculated per 100 children.

The costs for hospital treatment were calculated proceeding from 535 rbl. per bed day (public utilities, wage fund, expenditures for drugs and catering).

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RESULTS

A significant decrease in the incidence of ARVI in the main group against the background of prophylactic treatment with AP was observed (from 278.4 to 181.2 cases per 100 children, Table 1). The incidence of ARVI with diarrhea syndrome decreased from 52.9 to 32.0 and the incidence of adenoviral infection decreased from 43.1 to 1.9 cases per 100 children. No cases of rotaviral infection were observed against the background of AP prophylactics. The incidence of bacterial infections as complications of ARVI also decreased in the group receiving AP: acute pneumonia from 21.6 to 3.8 cases and stomatitis from 7.8 to 1.9 cases per 100 children. The incidence of acute shigellosis and AII caused by opportunistic flora decreased by 4 and 2.8 times, respectively.

At the same time, the incidence of otitis in children receiving AP increased by 1.5 times compared to the control group, which can be explained by the presence of chronic recurrent otitis in children. Two children of the main group had acute tonsillitis against the background of AP treatment (1 case was recorded before the start of treatment).

Children of the main group more rapidly recovered from ARVI and stayed in hospital for 6.8 days (*vs.* 10 days in the control group, Table 2). The mean stay in hospital for children with ARVI accompanied by diarrhea syndrome, acute pneumonia, and AII was similar in both groups.

Prophylactic treatment with AP increased the percent of ARVI cases with rhinopharyngitis, while the incidence of ARVI complicated by bronchitis, tracheitis, and laryngotracheitis, and with pneumonia-like complications decreased (Table 3). At the same time, no positive dynamics was noted in the incidence of otitis and diarrhea syndrome against the background of prophylactic treatment with AP.

In the group treated with AP, the percent of ARVI cases with fever above 39°C and 38-39°C decreased from 16.9 to 8.4% and from 41.3 to 29%, respectively.

Auscultation revealed rales in the lungs in 11.5% children of the main group and in 16.9% controls. The duration and severity of the main symptoms (fever, rough breath, rales, intoxication symptoms) also decreased in the main group.

No allergic and other side reactions and complains caused by administration of the preparation were noted.

The decrease in children morbidity reduced costs for hospital stay and treatment (Table 4): by 2.2 times

TABLE 1. Children Morbidity in the Main and Control Groups

Nosology	Control group		Main group	
	abs.	cases per 100 children	abs.	cases per 100 children
ARVI of unknown etiology	142	278.4	96	181.2*
ARVI, diarrhea syndrome	27	52.9	17	32.0*
Intestinal disbiosis	15	29.4	5	9.4*
Adenovirus infection	22	43.1	1	1.9*
Rotavirus infection	1	2.0	0	0
Acute pneumonia	11	21.6	2	3.8*
Otitis	10	19.6	15	28.3*
Stomatitis	4	7.8	1	1.9
Tonsilitis	1	2.0	2	3.8
Acute shigellosis	4	7.8	1	1.9*
AII caused by opportunistic flora	8	15.7	3	5.7*
Lambliasis	7	13.7	1	1.9*
Infections of the urinary tract	0	0	3	5.7
Total	252	494.1	147	277.4*

Note. Here and in Tables 2-4: *$p<0.05$ compared to the control group.

TABLE 2. Duration of Stay in Hospital for Children of the Main and Control Groups (in bed days)

Nosology	Control group	Main group
ARVI of unknown etiology	10	6.8
ARVI, diarrhea syndrome	10	11.9
Intestinal disbiosis	11.1	18.8
Adenovirus infection	8.6	10
Rotavirus infection	6	0
Acute pneumonia	15.2	22.5
Otitis	8.8	13.2
Stomatitis	9	5
Tonsillitis	5	7.5
Acute shigellosis	11.3	14
All caused by opportunistic flora	21	11.7
Lambliasis	9.7	10
Infections of the urinary tract	—	11.7
Total	125.7	143.1*

TABLE 3. Characteristics of Children with ARVI in the Main and Control Groups

Nosology	Control group		Main group	
	abs.	%	abs.	%
ARVI rhinopharyngitis	89	41.8	72	55
ARVI tracheitis	21	9.9	9	6.9
ARVI bronchitis	23	10.8	11	8.4
ARVI laryngotracheitis	9	4.2	4	3
ARVI, diarrhea syndrome	27	12.7	17	13
ARVI adenorotaviral infection	23	10.8	1	0.8
ARVI otitis	10	4.7	15	11.5
ARVI pneumonia	11	5.2	2	1.5
Total	213	100	131	100

for ARVI of unknown etiology, by 1.3 times for ARVI with diarrhea syndrome, by 19.4 times for rota- and adenoviral infections, by 3.7 times for acute pneumonia, by 7.2 times for stomatitis, and by 3.5 times for shigilesis and AII caused by opportunistic flora.

Thus, the total index of morbidity in children

TABLE 4. Number of Bed Days; Costs

Nosology	Control group		Main group	
	bed days	costs, rubles	bed days	costs, rubles
ARVI of unknown etiology	1422	760 770	651	348 285
ARVI, diarrhea syndrome	269	143 915	203	108 605
Intestinal disbiosis	166	88 810	94	50 290
Adenovirus infection	188	100 580	10	5 350
Rotavirus infection	6	3210	0	0
Acute pneumonia	167	89 345	45	24 075
Otitis	88	47 080	198	105 930
Stomatitis	36	19 260	5	2675
Tonsillitis	5	2675	15	8025
Acute shigellosis	45	24 075	14	7490
All caused by opportunistic flora	126	67 410	35	18 725
Lambliasis	68	36 380	10	5350
Infections of the urinary tract			35	18 725
Total	2586	1 383 510	1315*	703 525*

against the background of AP treatment significantly decreased from 494.1 to 277.4 per 100 children, the mean duration of stay in hospital decreased from 2586 to 1315, the index of mean bed day per case decreased from 10.3 to 8.9. Statistical analysis confirms cost estimates for hospital treatment of children, which decreased from 1,383,510 to 703,525 rubles against the background of AP treatment.

Analysis of our finding drove us to a conclusion that two courses of AP prophylactic are clinically efficient and pharmacologically and economically substantiated.

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