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Research Article

FEATURES OF CLINICAL MANIFESTATIONS OF CYTOMEGALOVIRUS INFECTION IN CHILDREN

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ABSTRACT

The work is based on the features of clinical manifestations of acute primary and reactivated forms of CMVI in children aged 1 to 3 years, observed on an outpatient basis. The main group and the comparison group included patients who applied for an appointment with an infectious disease doctor with symptoms of acute respiratory infection in the period 2021 to 2022 at the Bukhara Regional Infectious Diseases Hospital.

With primary CMV infection, the acute period of the disease in young children proceeds according to the type of mononucleosis, the clinical picture of the reactivated form is nonspecific, accompanied by a prolonged fever with lymphadenopathy. Indirect laboratory markers of active CMVI are: neutropenia (46.1%), hypoimmunoglobulinemia A (49.0%) and G (51.0%).

KEYWORDS

Cytomegalovirus infection, children, active primary cytomegalovirus infection and reactivated cytomegalovirus infection.

INTRODUCTION

Cytomegalovirus infection (CMVI) is one of the most common causes of congenital viral infections and can cause severe pathologies, up to the death of a child [2,4]. According to domestic and foreign experts, from 0.5 to 5% of children are born with congenital CMVI, of which about 90% of children are asymptomatic carriers

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[1,6]. At the same time, the subclinical form of CMVI does not mean a guarantee of well-being in the future in 5-15% of such children in the next 1-2 years and at a later date, violations of the central nervous system, hearing organs, vision, cerebral palsy, mental retardation, poor school performance are recorded [3,7].

Diagnosis of CMVI in newborns is often a difficult task due to the absence of typical symptoms and signs of CMVI, as well as due to the peculiarities of the immune system of newborns, premature newborns represent a high risk group for the development of CMVI, since it is known that the incidence in such children is increased compared to full-term newborns [5,9,11]. Despite numerous studies devoted to this problem, the development of adequate therapeutic tactics for the treatment of newborns with CMVI remains an unsolved task. The importance of solving the problem of timely detection of congenital and perinatal CMVI is also explained by the fact that CMVI is often the cause of death of children in the second half of life [8,10,12].

The purpose of the work. To study the features of clinical manifestations of acute primary and reactivated forms of CMVI in children aged 1 to 3 years, observed on an outpatient basis.

MATERIALS AND METHODS

The main group and the comparison group included patients who applied for an appointment with an infectious disease doctor with symptoms of acute respiratory infection in the period 2021 to 2022 at the Bukhara Regional Infectious Diseases Hospital. The group of conditionally healthy patients included patients who visited a pediatrician for examination before routine vaccination. The examination of the children was carried out after the signing of a voluntary informed consent by the parents (or other legal representatives).

To identify a group of patients with active primary and reactivated CMV infection, 110 children were examined, referred to a pediatrician with acute respiratory infection, examined for markers of herpes viral infections (CMVI, HCV-6, EBV). Of 110 children with symptoms of acute respiratory infection, 65 had markers of CMV infection. To solve the problem, a clinical and laboratory examination of children of the main group (n=65) with active forms of CMVI was carried out. The comparison group consisted of 43 children from the initially formed study group (110 patients with ARI symptoms).

THE RESULTS OF THE STUDY AND THEIR DISCUSSION

Among children with ARI (n=110), various CMV markers were detected in 59% (65), and active CMV infection was detected in 14% (16). Among clinically healthy CMVI markers were detected in 71% (46) children, without signs of activation. During serological examination, anti-CMV IgG in the main group was determined in 51% (33) cases, in the comparison group in 81% (35) cases, among healthy children - in 83% (38) cases with arithmetic mean values of the level of anti-IgG without significant differences. Anti-CMV IgM was detected in 55% (36) of children only in the main group.

Laboratory, primary CMVI (PCR+ blood, Ig M=, IgG-) was tolerated by 49% (32) children of the main group, 51% (33) patients were diagnosed with reactivation. Primary CMVI was accompanied by a classic set of symptoms of mononucleosis - fever for more than 7 days and intoxication in all patients, severe lymphadenopathy, tonsillopharyngitis, moderate liver enlargement. Acute febrile disease with lymphadenopathy was noted in 51% (33) of the children of the main group, in whom the stage of CMVI

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reactivation was determined (PCR+ blood, IgM±, IgG+). The clinical picture was nonspecific, localized lymphadenopathy was noted in 75% (25) of children, fever for more than 5 days in 65.0% (21), tonsillopharyngitis in 30% of cases, hepatomegaly was not noted. When studying the anamnestic data between the children of the main group and the comparison group, the differences concerned only the structure of acute morbidity, namely recurrent otitis, occurred in 23% (15) children of the main group and 5% (2) of the comparison group, p=0.001. Significant differences in clinical manifestations in the compared groups were found in lymphadenopathy (91% vs. 16%), rhinorrhea (23% vs. 74%), catarrhal pharyngitis (91% vs. 72%), grade 2-3 palatine tonsillitis (66% vs. 35%), tonsillar plaque (23% vs. 0%) and hepatomegaly (14% vs. 0%). Statistically significant differences in deviations of laboratory parameters were established: neutropenia was significantly 1.8 times more common in the main group - 46% (30) versus 16% (7) in the comparison group (p=0.002). Statistically significant differences were also obtained for an isolated decrease in total IgA in the blood in the main group: 49% (32) vs. 28% (12) in the comparison group (p=0.02) and for a decrease in total IgG in the blood: 51% (33) vs. 18.6% (8) (p=0.001). ALT increase was registered only in acute CMVI in the form of infectious mononucleosis (in the OG): 44% (14) (p=0.001), always in combination with AST, and in the comparison group, ALT and AST increases were not registered in any case (Table №1).

Table № 1. Clinical symptoms and laboratory abnormalities in the main group and the comparison group

Signs	Main group (n= 65)		Comparison group (n= 43)	
	Abc.	%	Abc.	%
Fever	65	100	43	100
Lymphadenopathy	59	91	7	16
Sialoadenitis	4	6	0	0
Nasal congestion	51	78	36	84
Rhinorrhea	15	23	32	74
Cough	24	37	23	53
Catarrhal pharyngitis	59	91	31	72
GNM 2-3 ct	43	66	15	35
Plaque on the tonsils	15	23	0	0

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Hepatomegaly	9	14	0	0
Leukopenia	19	29	6	14
Leukocytosis	23	35	8	18
Neutropenia	30	46	7	16
Neutrophilosis	13	20	6	14
Lymphocytosis	47	72	10	23
Monocytosis	41	63	16	37
Atypical mononuclears	18	28	0	0
Reduction of immunoglobulin A	32	49	12	28
Reduction of immunoglobulin G	33	51	8	18
Increasing ALT and AST	14	21	0	0

CONCLUSIONS

With primary CMV infection, the acute period of the disease in young children proceeds according to the type of mononucleosis, the clinical picture of the reactivated form is nonspecific, accompanied by a prolonged fever with lymphadenopathy. Indirect laboratory markers of active CMVI are: neutropenia (46.1%), hypoimmunoglobulinemia A (49.0%) and G (51.0%).

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