



Clinical and Laboratory Features of the Course of Serous Meningitis of Enterovirus Etiology in Children

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Annotation: The purpose of the study to evaluate clinical and laboratory parameters in enteroviral meningitis in children

Key words: laboratory parameters, enteroviral meningitis

Relevance. In the structure of infectious diseases in children, meningitis is the most common form of damage to the central nervous system (Kuprina N.P. et al. 2002). The incidence of meningitis and meningoencephalitis in Uzbekistan is an urgent problem. In connection with the development of high technologies, with the introduction of molecular diagnostics, the possibilities of etiological decoding have increased, and, accordingly, the possibilities of diagnosis and treatment have increased. (Musabaev E.I., Kasymova R.N. 2008). Among them, serous meningitis (SM) accounts for more than half. The frequency of SM among children is about 65% (Dick G.A. et al. 2002). The etiological structure of SM is different, according to most researchers, in 50-60% of cases, the etiological causes are enteroviruses. Remaining poorly controlled in healthcare practice, enterovirus infection (EVI) occupies one of the leading places among infectious diseases that occur with CNS damage. A feature of this infection is the virus carrier, which constantly causes the occurrence of sporadic forms and mass diseases, which, like the incidence, is observed not only among young and older children, but also among adults (Eshmolov S.N. et al. 2012).

However, this infection has not been studied in our region, and a large number of patients with SM remain undeciphered. In this regard, there is a need to optimize the diagnosis of SM and study the course of meningitis, taking into account the deciphered nosology.

The purpose of the study: to evaluate clinical and laboratory parameters in enteroviral meningitis in children.



Materials and methods of research: 16 patients with a diagnosis of serous meningitis of enteroviral etiology, hospitalized in the city infectious diseases hospital of Samarkand, served as the material for the study. All patients underwent a complex of studies, including clinical and biochemical studies of blood, cerebrospinal fluid, as well as the study of cerebrospinal fluid according to standard methods with the isolation of enterovirus RNA by PCR. The determination of enterovirus RNA in samples of clinical material (cerebrospinal fluid) was carried out by the polymerase chain reaction method using the Ampli Sense Enteroviruses FI reagent kit

Results and discussion: The analysis of the obtained results allowed us to identify the clinical features of serous meningitis of enteroviral etiology (EVM) in the observed children. Depending on age, 3 groups of patients were identified: group 1 - children from 1 to 3 years old, group 2 - from 3 to 7 years old and group 3 - from 7 to 14 years old. In the age structure of the diseased children from 1 to 3 years old were 2 (12.5%) people, from 3 to 7 years old - 4 (25%), from 7 to 14 years old - 10 (62.5%). There were significantly more boys than - 11 (68.8%) and 5 (31.2%), respectively. When comparing the characteristic onset of the disease, the main coincident symptoms and symptom complexes, depending on the age of the patients, significant differences were revealed (Table 1).

Table 1

The characteristic onset of the disease with EVM in children of different age groups.

Symptoms	Total N=16		Children 1-3 years old N=2		Children 3-7 years old N=4		Children 7-14 years old N=10	
	abs	%	abs	%	abs	%	abs	%
Acute onset	12	75,0	2	100	3	75,0	7	70,0
Gradual onset	4	25,0	-	-	1	25,0	3	30,0
Vomit	15	93,8	2	100	4	100	9	90,0
Headache	13	81,3	-	-	3	75,0	10	100
Fever	15	93,8	2	100	3	75,0	10	100
Catarrhal symptoms	9	56,3	1	50,0	2	50,0	6	60,0
Total	16	100	2	100	4	100	10	100

As can be seen from the table, in most cases, in 12 (75%) patients, the disease began acutely, with a sharp rise in temperature that did not decrease when taking antipyretic drugs, the patient complained of severe headache, vomiting (single or multiple), not associated with eating, severe weakness, drowsiness, loss of appetite. In these cases, all of the above symptoms and the ever-deteriorating condition of the child forced the parents to seek emergency medical attention.

With the gradual development of the disease, neurological symptoms increased for three or more days, which was noted in 4 (25.0%) patients. In 9 (56.3%) patients, clinical manifestations of meningitis occurred against the background of catarrhal phenomena from the upper respiratory tract. The triad of symptoms characteristic of meningitis, in the form of headache, vomiting and fever (increase in body temperature up to 38-39.0 C) was recorded upon admission to the hospital



in 13 (81.3%) patients. Of these, fever was most often recorded in 15 (93.8%) patients and vomiting - in 14 (87.5%) cases, headache was less common in 13 (81.3%) children.

In the group of children from 1 to 3 years, the disease began acutely in all cases. All children in this group had vomiting and fever.

Patients aged 3 to 7 years had an acute onset of the disease with the development of a pronounced clinical picture during the first two days only in 3 (75.0%) cases, a pronounced clinical picture during the first two days only in 3 (75.0%) cases cases, in 1 (25%) child of this age, the disease began with a gradual increase in neurological symptoms. The triad of symptoms characteristic of EVM was positive in 3 (75%) patients, of which fever occurred in 3 (75%) cases, headache in 3 (75%) cases, and vomiting in all children of this age group.

In school-age children, the acute onset of EVM was noted in 7 (70%) cases, in 3 (30%) patients the disease began gradually - neurological symptoms increased for 3 or more days. The triad of symptoms characteristic of EVM was registered in 9 (90%) children, vomiting was observed in 9 (90%) patients, fever of varying intensity and headache in all patients of this group. Catarrhal phenomena from the mucosa of the upper respiratory tract, manifested as hyperemia of the posterior pharyngeal wall, rhinitis, were noted in 9 (56.3%) of the examined patients. Most often, the above symptoms were recorded in children of school age - in 6 (60%) cases, at the age of 3 to 7 years - in 2 (50%) cases, in the group of children from 1 to 3 years they occurred in 1 (50%) sick.

All examined patients (100%) had such a sign of intoxication as asthenia, which manifested itself in the form of lethargy of varying severity, lack or decrease in appetite, drowsiness, behavioral disorders - the child became capricious, tearful, naughty, in some children negativism was sharply expressed. . Fever was noted in 15 (93.8%) patients, of which in 3 (18.8%) it did not rise above 38.5 ° C, in 12 (75%) people the body temperature was at high febrile numbers. All children of the younger age group had a febrile fever. Patients aged 3-7 years had fever in 3 (75%) cases, febrile in 2 (50%) children, and subfebrile in 1 (25%) cases. All children of school age, there was a fever of varying severity - in 8 (80%) cases - up to a level of 38.50 C-39.50 C, in 2 (20%) cases - not higher than 38.50 C.

The results of the comparative analysis of the frequency of occurrence of various forms of EVM severity in the examined age groups of patients are shown in Table 2.

Table 2

The frequency of occurrence of various forms of severity of EVM in children of different age groups

Disease severity	Total N=16		Children 1-3 years old N=2		Children 3-7 years old N=4		Children 7-14 years old N=10	
	abs	%	abs	%	abs	%	abs	%
Mild	1	6,2	-	-	-	-	1	10,0
Moderate	9	56,3	-	-	3	75,0	6	60,0
Severe	6	37,5	2	100	1	25,0	3	30,0
Total	16	100	2	12,5	4	25	10	62,5

The disease in all cases was benign and had a smooth course. Enteroviral meningitis more often - in 9 (56.3%) cases proceeded in a moderate form in patients of all age groups. The severe



form was registered in 6 (37.5%) patients, the mild form - in 1 (6.2%) patient. In children of different age groups, there were no significant differences in the frequency of occurrence of different forms of disease severity. Data on indicators of forms of severity in different age groups are presented in Table 3.

The onset of the disease was characterized by clinical manifestations of acute hypertensive syndrome (intense bursting headache with predominant localization in the frontotemporal areas, repeated vomiting) with moderately severe cerebral symptoms and fever.

In 13 (81.25%) cases, the cellular composition of the CSF was characterized by moderate lymphocytic pleocytosis (from 20 to 300 cells in 1 μ l), in 2 (12.5%) cases, cytosis was more than 300 cells in 1 μ l. In 1 (6.25%) patient, the cell level exceeded 800 in 1 μ l, indicating pronounced inflammatory changes with increased hyperproduction of cerebrospinal fluid. In 2 (12.5%) children, neutrophilic pleocytosis occurred on the 1st day of illness, which changed to lymphocytic pleocytosis on the 3rd day after repeated lumbar puncture. Sedimentary samples of Pandey and Nonne-Appelt were weakly positive and positive, the protein content was moderately increased, the level of glucose and chlorides practically did not differ from normal values.

A favorable prognosis for all commonly encountered clinical manifestations of enteroviral infections in the absence of specific therapy allows, first of all, prescribing to patients with these, as N.K. Voroshilov, "acute self-sterilizing diseases" (literals), a number of simple recommendations - bed rest for a period of high fever, severe cerebral symptoms, fractional drinking, a sparing diet, rinsing the mouth and throat with furacillin solution, taking symptomatic drugs (antipyretics, analgesics). In a hospital, patients were additionally prescribed pathogenetic therapy - desensitizing agents, dehydration, antiemetic drugs, according to indications - infusion therapy for 2-3 days, dexamethasone according to the scheme for 4-5 days.

Antibacterial therapy was administered to patients with signs of inflammation of the maxillary sinuses, tonsillitis, exacerbation of chronic tonsillitis, acute bronchitis, urinary tract infection.

Most of the patients (11 children) were discharged on the 5th-7th day, 2 patients on the 4th day, 1 child on the 9th day, 1 patient on the 13th day of the hospital stay practically healthy. Due to special circumstances, 1 patient was discharged on the 18th day of hospital stay.

Conclusions:

1. Among the hospitalized patients in the IIB of Samarkand, there were 16 patients aged 1 to 14 years with a laboratory (cerebrospinal fluid PCR) confirmed diagnosis of enteroviral meningitis.
2. The main group of patients with meningitis of enteroviral etiology were children aged 7 to 14 years (62.5%).
3. In children with enteroviral meningitis, moderate and severe forms of the disease predominate.
4. CSF changes In most cases, the cellular composition of the CSF was characterized by moderate lymphocytic pleocytosis.
5. The course of the disease in all cases is benign with a short (1-2-3 days, rarely 4-5 days) feverish period, a short (4-5 days) period of clinically pronounced meningeal syndrome. Most



patients were discharged on the 5-7th day after hospitalization with a clear improvement in their condition.

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