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CLINICAL MANIFESTATIONS OF CENTRAL NERVOUS SYSTEM DAMAGE IN NEWBORNS, DEPENDING ON THE

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Abstract.

120 newborns with moderate and severe perinatal CNS lesions who were in the neonatal pathology department were examined. The study showed a high reliable incidence of perinatal CNS damage in newborns in the studied groups. An analysis of studies of the clinical manifestations of damage to the nervous system of a newborn in perinatal encephalopathy has shown that changes in the state of the central nervous system can further affect the health of the child, and with late diagnosis and severe cases, the disease can occur with a complicated long-term course of the disease perinatal encephalopathy of newborns.

Key words: perinatal encephalopathy, chin tremor, intracranial hypertension syndrome, hypotension, hypertension, horizontal nystagmus.

Relevance. The relevance of the problem of perinatal encephalopathy (PEP) in pediatrics is due to the fact that PEP affects the quality of life of children and the formation of various damage to the nervous system, in severe cases leading to disability.[1] In the structure of childhood disability, the first place belongs to congenital malformations, the second to mental disorders, and the third to diseases of the nervous system. Among the later, 35-40% are lesions that occur in the perinatal period due to the influence of various adverse factors on the development of the nervous system. [2] It is known that the course and outcomes of perinatal pathology have a great influence on the formation of mental disorders and diseases of the central nervous system. [6] In 86% of cases, neurological diseases leading to disability in children are a consequence of the pathology of pregnancy and childbirth, and the outcome of such pathology in 30% of cases is recovery, in 30% – permanent disability, and in 40% – conditionally disabling conditions, which, with timely and proper rehabilitation, can be partially or even completely reversible.[7] The high frequency of damage to the nervous system of newborns in perinatal encephalopathy of varying severity makes it necessary to study the development of the disease in more detail. [9] In order to reduce morbidity, disability and infant mortality, as well as to develop optimally effective diagnostic methods and prescribe adequate corrective treatment in the early recovery period, the theoretical and practical importance of studying the clinical manifestations of central nervous system damage in newborns with perinatal encephalopathy is obvious. [12]

The purpose of the study: to study the clinical manifestations of damage to the central nervous system in newborns with perinatal encephalopathy in order to develop effective methods of diagnosis and adequate treatment of the disease.

Material and research methods.

This work shows the results of studying anamnestic, clinical, paraclinical, generally accepted laboratory data in 120 newborns with moderate to severe perinatal damage to the central nervous system, who were in the neonatal pathology department and in the neonatal intensive care unit of the Regional Children's Multidisciplinary Medical Center in Samarkand (chief physician Professor Azizov M.K.), which is the clinical base of the Department of 1-pediatrics and neonatology Samarkand Medical University.

The exclusion criteria for sick newborns were congenital malformations, infectious-inflammatory and organic brain lesions.

The examination consisted of collecting general clinical research methods, examining the

newborn with an assessment of somatic, cardiological and neurological status.

The clinical characteristics of the observed patients were based on a study of the features of the medical history, the severity of the course and dynamics of the disease, and data from general laboratory studies.

As needed, patients were examined by a neuropathologist, neurosurgeon, cardiologist and cardiac surgeon.

The results of the study.

We conducted examinations of sick children, who, according to the set goals and objectives of the study, were divided into groups III:

Group I consisted of 50 newborns with damage to the central nervous system in perinatal encephalopathy of moderate severity.

Group II included 40 newborns with damage to the central nervous system in severe perinatal encephalopathy.

Group III included 30 newborns with perinatal CNS damage to evaluate the effectiveness of the diagnostic coefficient.

The analysis of the perinatal history of newborns revealed that all children with perinatal encephalopathy were born full-term with a gestational age of 38-42 weeks, body weight at birth ranged from 2800-4010 grams. When making a diagnosis of perinatal central nervous system (CNS) lesions and determining the severity of the disease, ICD-10 was used. There were 38 boys and 52 girls among the examined children; 12 children aged 1-7 days and 78 children aged 9-28 days (Table-1).

Table-1

Distribution of sick children by gender and age in the examination groups

The subjects	Quantity	Male		Age	
		Boys	Girls	1-7 days	8-28 days
I Group	50	24	44	4	52
II Group	40	14	8	8	26
Total	90	38	52	12	78

Of all the patients, 3 (3.3%) were transferred from maternity hospitals within the first day of the onset of the disease, 53 (58.9%) – on days 1-7, and the remaining 34 (37.8%) – within days 8-28.

The distribution of admitted patients by duration and severity of CNS damage is shown in Table-2

Table-2

Distribution of examined sick children by disease duration at the time of admission

Duration of the disease	Number of surveyed	
	I group (n=50)	II group (n=40)
1-7 days	29 (58,0%)	24 (60,0%)
8-28 days	21 (42,0%)	16 (40,0%)

Table-3

The distribution of admitted patients by day and severity of the disease is shown in Figure-1 and Table-3

Degree of severity	Number of newborns by degree	Number of newborns by degree	
		1-7days	8-28 days
Medium	50	13	27
Heavy	50	32	18

An analysis of the distribution of patients by life days and severity of the disease in Tables-2, 3, Figures-1 and Figures-2 shows that admission of patients from maternity hospitals starting at day 8 is associated with the severity of CNS damage and the possibility of deterioration of transportation from another hospital, and as you know, strict rest is one of the fundamental principles of newborn

treatment with brain damage in the first days of life, in this regard, patients with severe CNS damage were much more likely to be admitted.

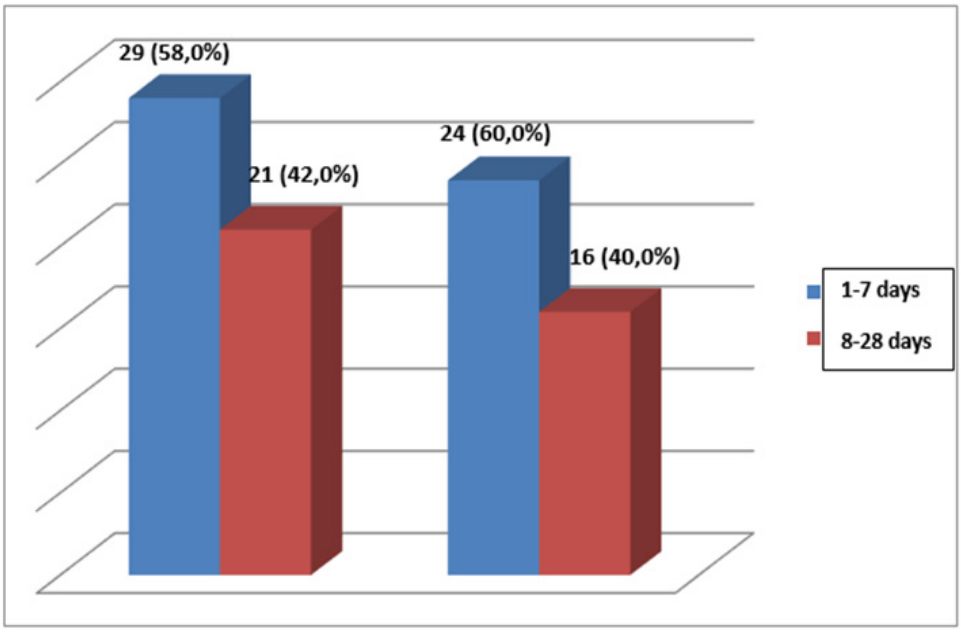

Figure-1. Distribution of the examined sick children according to the duration of the disease at the time of admission

At the same time, it is obvious that patients with severe severity were admitted at an earlier date and only from maternity hospitals, due to the need for specialized medical care, including conducting a full comprehensive study, and the need for specialized neurological and neurosurgical care.

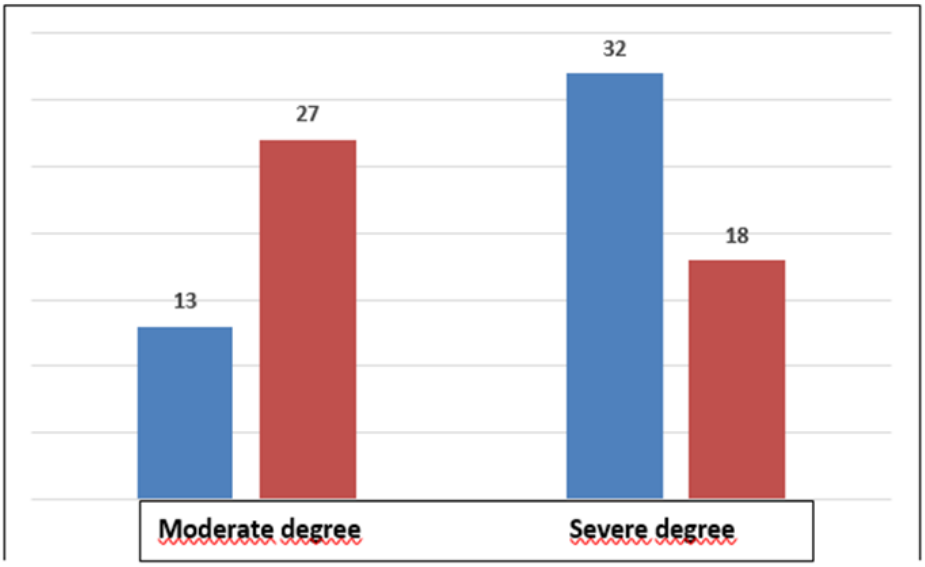

Figure-2 Distribution of admitted patients according to the severity of the disease.
Note: -I Group - Group II

The clinical symptoms, distinguished by the syndromological feature observed in patients (in%), are presented in Table-4

Table-4

The frequency of clinical symptoms in newborns with perinatal CNS damage (%)

№	Indicators	I Group (n=50)		II Group (n=40	
		Abs.	%	Abs.	%

I	**Depression syndrome**				
1	Not active	17	34,0	18	45,0
2	Muscle tone is lowered	9	18,0	12	30,0
3	Drowsiness	18	36,0	27	67,5
II	**Arousal syndrome**				
4	Anxious and agitated	7	14,0	15	37,5
5	Trembling of the chin	21	42,0	23	57,5
6	Limb tremor	16	32,0	19	47,5
7	Impaired reflexes	6	12,0	12	30,0
8	Involuntary muscle twitching	4	8,0	7	17,5
III	**Intracranial hypertension syndrome**				
9	Increased excitability	16	32,0	18	45,0
10	Swelling and compaction of the fontanel	4	8,0	11	27,5
11	Frequent regurgitation and vomiting	12	24,0	18	45,0
12	Excessive growth of the head circumference	2	4,0	3	7,5
IV.	**Impaired muscle tone**				
13	Hypotension	6	12,0	12	30,0
14	Hypertension	9	18,0	14	35,0
V.	**Oculomotor system disorders**				
15	Horizontal nystagmus	7	14,0	11	27,5
16	Vertical nystagmus	8	16,0	12	30,0
17	The Grefe symptom	3	6,0	8	20,0
18	Convergent strabismus	3	6,0	9	22,5

The analysis of the study shows that with depression syndrome: insufficient activity of the newborn was observed in 17 (34.0%) in groups I and 18 (45.0%) in groups II, decreased muscle tone in 9 (18.0%) and 12 (30%), drowsiness in 18 (36%) and 27 (67.5%); arousal syndrome: anxiety and agitation were observed in 7 (14.0%) newborns of group I and 15 (37.5%) of group II, chin tremor in 21 (42.0) and 23 (57.5%), limb tremor was observed in 16 (32.0%) and 19 (47.5%), impaired reflexes were determined in 6 (12.0%) and, respectively, in 12 (30.0%), involuntary muscle twitching was observed in 4 (8.0%) and, conversely, in 7 (17.5%); The following symptoms were observed for intracranial hypertension syndrome: hyperexcitability in 16 (32.0%) and 18 (45.0%), bulging and compaction of the fontanel were also detected in 4 (8.0%) and 11 (27.5%), frequent regurgitation and vomiting were observed in 12 (24.0%) and 18 (45.0%), excessive head circumference was observed in a minority of newborns in the following numbers: 2 (4.0%) and 3 (7.5%), respectively; there was also a violation of muscle tone: hypotension in 6 (12.0%) and 12 (30.0%) and hypertension in 9 (18.0%) and 14 (35.0%), and finally, oculomotor system disorders were also detected: horizontal nystagmus was in 7 (14.0%) and 11 (27.5%), vertical nystagmus in 8 (18.0%) and in 12 (30.0%), Grefe's symptom in 3 (6.0%) and in 8 (20.0%), convergent strabismus in 3 (6.0%) and in 9 (22.5%), respectively, CNS lesions (observation groups I and II).

From Table-4 it can be concluded that the severity of central nervous system (CNS) damage in newborns is directly correlated with the likelihood and frequency of symptoms associated with severe syndromes.

The dynamic structure of clinical symptoms in neonatal patients with perinatal CNS damage revealed that the child's status could deteriorate suddenly, transitioning from depression syndrome to hyper excitability syndrome, and vice versa.

A study of the clinical manifestations of CNS lesions in newborns demonstrated that the majority of patients with severe perinatal encephalopathy exhibited more pronounced CNS damage compared to newborns with moderate perinatal encephalopathy.

Conclusions:

The analysis of the clinical manifestations of central nervous system (CNS) damage in newborns with perinatal encephalopathy has shown that, in most patients, this condition can have long-term effects on their health, impact their quality of life, and lead to various neurological impairments. In severe cases, delayed or untimely diagnosis can result in disability.

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