ical and subtropical climate, where there is a high risk of infection with the dengue fever virus, it is necessary that doctors of narrow specialties, district therapists and pediatricians should be informed and familiarized with the theoretical basis of the clinic of this infection, since timely detection and provision of proper medical care contribute to a significant reduction in mortality rates from severe cases of dengue.

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A CLINICAL CASE OF NON-IMMUNE HYDROPS IN A PREMATURE NEWBORN WITH A CHROMOSOMAL ANOMALY

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The article presents the features of diagnosis and dynamic monitoring of a premature baby with non-immune dropsy on the background of a chromosomal anomaly (Down syndrome). The data of scientific literature on the epidemiology and etiology of this disease are analyzed, as well as the outcomes of the disease are considered.

Keywords: non-immune fetal hydrops, NIFH, premature newborn, chromosomal abnormalities, trisomy of chromosome 21, Down syndrome.

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Introduction. Non-immune fetal hydrops (NIFH) - is defined as an accumulation of extravascular fluid in two or more serous cavities and fetal tissues that occurs at various stages of pregnancy in the absence of circulating antibodies to erythrocyte membrane antigens. Fluid accumulation can be in the subcutaneous space (more than 5 mm), pericardial, pleural and abdominal cavities [1, 2, 3]. NIFH was first described in 1892 by J.W.Ballantyne [1].

The registered incidence of non-immune fetal hydrops is about 3 per 10,000 births, however, the incidence is significantly higher due to spontaneous or artificial termination of pregnancy in the first and second trimesters [2].

Non-immune fetal hydrops is based on various causes (more than 150 nosologies), which, according to the results of a large-scale study conducted by Bellini et al. (a systematic review that included an analysis of 5,437 cases of NIFH) were divided into 14 categories. Among them, chromosomal abnormalities occupy one of the leading places and are represented by trisomies, triploidies and monosomy X, regardless of the presence of concomitant fetal malformations [3].

Due to the widespread use of ultrasound, in most cases non-immune hydrops is diagnosed prenatally [4]. The criterion for diagnosis is an excessive accumulation of fluid in two or more areas of the body (chest, abdominal cavity, pericardium, skin). In most cases, NIFH is a fatal condition - mortality with NIFH, according to some data, reaches 90%. NIFH over time, as a rule, remains unchanged or gradually increases, however, cases of its spontaneous resolution are described. Information about the prognosis for fetuses with non-immune dropsy is extremely scarce due to high

Table 1

Complete blood count

	in 1 day	in 2 day	in 3 day	in 4 day	in 5 day	in 6 day	in 7 day	in 8 day	in 9 day	in 10 day	in 11 day
Hemoglobin. g/l	161	123	110	98	126	126	118	129	119	125	109
Red blood cells. x1012/l	3.92	3.02	2.75	2.4	3.56	3.69	3.48	3.74	3.74	4.05	3.57
Hematocrit. %	47.1	36.3	32.9	27.9	36.7	36.6	34.7	37.7	35.2	38.1	33.5
White blood cells. x109/l	50.5	20.12	7.74	7.7	7.59	9.18	6.8	5.1	3.97	5.79	6.05
Blasts. %	14	9	2	-	4	0	0	0	0	0	0
Myelocytes. %	5	2	2	-	5	2	1	1	0	0	0
Metamyelocytes. %	1	2	1	-	0	2	0	0	0	0	0
Stab neutrophils. %	5	2	1	-	1	0	0	1	0	0	2
Segmented neutrophils . %	27	66	67	-	65	58	55	39	14	23	27
Lymphocytes. %	42	15	18	-	19	30	38	52	78	59	59
Eosinophils . %	3	0	1	-	2	0	0	0	2	1	2
Basophils. %	0	0	0	-	0	1	1	1	0	1	0
Monocytes. %	3	4	8	-	4	7	5	6	6	16	10
Platelet count. x109/l	103	91	70	71	80	111	118	169	125	209	202
Reticulocytes. %	-	-	-	-	-	-	6.28	8.08	5.7	6.12	10.96

mortality. The mortality rate directly depends on the cause of NIFH. [5, 6]

Clinical case. Child R., male, from a 41-year-old mother, was born at a gestation period of 32/3 weeks. The woman has this sixth pregnancy, has a history of three artificial abortions, premature and urgent childbirth at 36 and 37 weeks, respectively (the children are healthy). The woman got registered in the women's consultation for this pregnancy at 17 weeks. From anamnesis: chronic nicotine intoxication, chronic gastritis, cholecystitis in remission, allergy (bronchospasm) to penicillin antibiotics, overweight (BMI 29.74). Pregnancy proceeded against the background of acute respiratory infection at 14 weeks with catarrhal phenomena without an increase in body temperature.

Due to the late referral of the woman to the women's consultation, biochemical and ultrasound screening of the first trimester was not carried out. The first ultrasound was performed at the time of 22.4 weeks, revealed placenta previa and marginal attachment of the umbilical cord to the placenta without signs of circulatory disorders.. Considering her age (41 years), she was consulted by a geneticist: the risk of birth defects is general population, the risk of chromosomal pathology is increased. She refused to perform an invasive diagnosis. At the gestation period of 32.3 weeks, according to ultrasound data, signs of non-immune fetal dropsy were revealed for the first time. During ultrasound in dynamics after 10 days, signs of non-immune hydrops (ascites, hydropericardium, hydrothorax) progress, polyhydramnios is diagnosed (amniotic fluid index - 361 mm). A survey was conducted on the TORCH complex, the results were negative.

Premature labor at 33 weeks, 2 days, naturally, the duration of the first period of labor is 5 hours 30 minutes, the second period is 14 minutes, prenatal discharge of amniotic fluid, anhydrous interval of 8 hours. A boy was born with a weight of 3050g, a length of 46cm, a head circumference of 31cm, a chest circumference of 30cm. Apgar score is 2/6 points, Silverman score is 10 points. At birth, the child's condition was regarded as extremely severe in terms of the severity of respiratory failure, edematous syndrome, and central nervous system depression. Primary resuscitation measures were carried out according to the methodical letter "Resuscitation and stabilization of newborns in the delivery room" [7]. When assessing the physical development of the child by the centile method, the body weight exceeded the 90th centile on the Fenton scale. The indicators of height and head circumference were within the average values (10-90 centile).

The child's condition remained extremely severe for three days, which was due to severe respiratory insufficiency, hemodynamic instability, pronounced edematous syndrome to the degree of anasarca. Spontaneous motor activity is reduced, diffuse hypotension, innate reflexes are suppressed. Breathing on the background of a ventilator is sharply weakened in both halves of the chest, auscultation is practically not heard. Heart tones are deaf rhythmic with a tendency to bradycardia (90-120 in 1 min). Hypotension. The abdomen is sharply enlarged in volume, tense. Palpation of the liver and spleen is difficult.

Particularly noteworthy were the phenotypic signs characteristic of Down syndrome: a flat profile of the face (in particular, flattening of the bridge of the nose), a flattened nape, additional skin folds around the back of the neck, epicanthic folds are present in the inner corners, ears are small and rounded, hands are short and wide, transverse palmar fold, fingers are short, macroglossia.

Respiratory ventilator support in PCV mode has been continued in the NICU

Table 2

Coagulogram in dynamics

Day of life	APTT	PTT	INR	TT	Fibrinogen g/l
1	38	14.9	1.29	27.3	0.36
3	59	14.6	1.17	78.8	0.32
6	49.2	13.4	1.17	17.2	1.3

Table 3

Dynamics of indicators of loss of body weight, rate of diuresis

Day of life	1	2	3	4	5	7	8	9	11	12	13	14	15
Body weight, g	3050	2960	2780	2575	2466	2339	2322	2250	2070	2040	2030	2071 (+41)	2103 (+32)
Loss of body weight, %	-	3	9	15	19	23	24	26	32	33	33	-	-
Rate of diuresis, ml/kg/h	1.7	2.9	3	2.0	2.5	3.7	5.2	4.4	5	5.3	2.6	3.8	3.7

Table 4

Biochemical parameters of blood plasma in dynamics

	in 1 day	in 3 day	in 4 day	in 6 day	in 8 day	in 13 day	in 25 day	37 day
Total protein, g/l	33.4	23.2	31.5	31.7	36.7	46.3	47.8	46.0
Albumin, g/l	22.2	-	-	23.1	27.1	32.3	-	-
Alaminoninotransferase (ALT), U/L	32.21	23.1	-	10.7	9.7	9.4	25.37	38.2
Asparto-aminotransferase (AST), U/L	79.75	-	-	12.0	13.9	15.9	74.28	114.6
Glucose, mmol/L	2.06	2.7	3.5	3.7	-	-	5.17	3.98
Urea, mmol/L	3.85	-	7.77	12.53	6.94	6.26	1.67	1.25
Creatinine, μmol/L	68.77	-	98.4	108.4	90.5	78.8	46.26	43.56
Total bilirubin, μmol/L	42.3	-	273.9	270.0	281.8	196.4	163.9	149.6
Bilirubin straight, μmol/L	9.8	-	28.0	48.6	58.3	79.3	71.9	62.0
Alkaline phosphatase, U/L	-	-	-	-	-	541.4	1051.2	1421.9
C-reactive protein(CRP), mg/l	2.51	1.9	-	8.8	6.3	1.4	3.13	-

ward. During the first hour of life, negative dynamics was noted due to the increase in signs of respiratory failure, an increase in the need for O2 subsidies to 60%, and replacement surfactant therapy was performed. Radiologically, signs of bilateral polysegmental pneumonia were revealed. According to echodopplercardiography: atrial communication 5.5 mm with left-right reset, functioning arterial duct 3.3 mm, bidirectional reset. The right parts of the heart are enlarged. Ejection fraction is 73%, there are no signs of effusion in the pericardial cavity. Ultrasound of pleural cavities - echographic signs of bilateral hydrothorax, the probability of compression atelectasis. (Fig. 1) Puncture and drainage of the right pleural cavity was performed, 22.0 ml of cloudy yellow liquid was obtained. The initial antibacterial therapy has been started. On the second day of life after the ultrasound examination of the pleural cavities, an increase in hydrothorax on both sides was revealed, pleural drains were installed by the surgeon. Hemorrhagic syndrome was noted. With a substitution purpose, therapy was performed: vikasol, transfusion of NIFH. On the third day of life, according to the control ultrasound, the presence of free fluid in the abdominal cavity in the volume of 160.0-180.0 ml was revealed. A pediatric surgeon drained the abdominal cavity, 179.0 ml of fluid was evacuated during the day. General clinical blood tests were performed in the NICU (Tables 1, 2). The features of the course of the first days of life were anemia, leukocytosis and thrombocytopenia. Antibacterial therapy with aminoglycosides in age-related dosage was enhanced, hypoproteinemia was corrected. In the future, positive dynamics was noted:the ventilation mode of the ventilator was changed to SIMV+PC, hemorrhagic syndrome was stopped, anemia was corrected by replacement hemotransfusion with erythrocyte mass, a significant decrease in edema with a significant weight loss relative to the initial body weight. According to the Echo-KG in dynamics: fenestrating defect of the atrial septum 6.5mm, reset of the left.

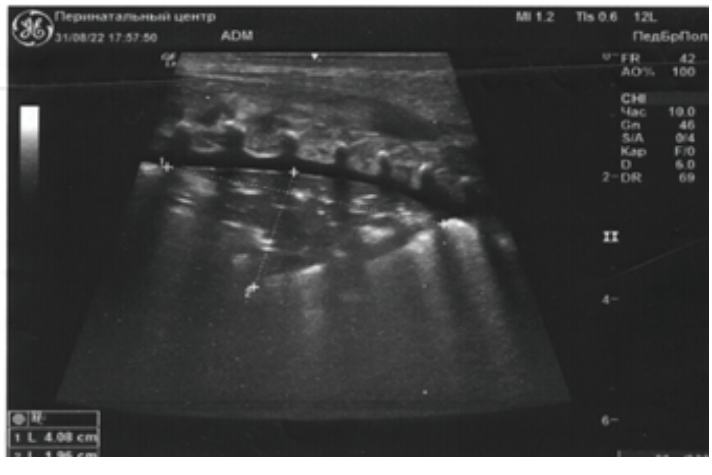

Fig. 1. The area of consolidation of lung tissue along the posterior surface of the left lung in the projection of the lower lobe

Enteral feeding was started from the first day with expressed native milk with a gradual expansion of enteral nutrition to the physiological norm. Consulted by a neurologist, geneticist. Karyotyping was performed – an abnormal karyotype was

Fig. 2. Abnormal karyotype: trisomy of chromosome 21 (Down syndrome)

revealed: trisomy on chromosome 21 (Fig. 2).

At the time of discharge, the condition is stable and satisfactory. Sucks actively from the chest, does not regurgitate. Lactation is sufficient. The skin is clean, pale pink, there is no swelling. In the lungs, the breathing is puerile, there are no wheezes. Heart tones of medium sonority, rhythmic. The abdomen is soft, accessible to deep palpation. Moderate hepatosplenomegaly persists: liver +3.0cm, spleen +1.0 cm. The chair is independent, regular. Urinates enough. Body weight on the day of discharge (38 days of life) – 2427g, postconceptual age 39 weeks. The prognosis for life is favorable.

Conclusion. In the described patient, taking into account the anamnesis data, the results of antenatal diagnosis and the condition at birth, the preliminary diagnosis was formulated as follows: "Intrauterine infection of unspecified etiology. Non-immune dropsy", due to the fact that infectious processes and, first of all, parvovirus infection are one of the causes of NIFH. However, a thorough diagnostic search, taking into account the identified characteristic phenotypic signs, made it possible to exclude the infectious genesis of NIFH and establish the correct clinical diagnosis and cause of non – immune dropsy in this case - trisomy on chromosome 21 (Down syndrome). The key feature of this clinical case is the complexity of differential diagnosis, as well as the high probability of death in such patients. A description of a clinical case of non-immune hydrops in a premature newborn with a chromosomal anomaly and the experience of managing a newborn child with this disease and a life-friendly outcome may provide.

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