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Comparative Clinical and Laboratory Parameters for Various Forms of Hemolytic Disease of the Newborn

O. B. Alimova
Samarkand State Medical University, Samarkand, Uzbekistan

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ABSTRACT

We examined 25 children with hemolytic disease of the newborn according to the Rh-conflict and 15 children according to the conflict according to the ABO system. It was revealed that the condition at birth in patients with fetal hemolytic disease according to the Rh factor is more severe compared to the disease according to the ABO system and is dependent on hematological parameters detected at birth: erythrocytes, hemoglobin, hematocrit.

Currently, one of the urgent problems in medicine is perinatal mortality. One of the topical areas of modern neonatology is the reduction of both perinatal mortality and perinatal morbidity. It should be noted that hemolytic disease of the fetus and newborn (HFN) affects both indicators [1,3].

Pathogenetic similarity of the development of the disease, despite minor differences in clinical manifestations, diseases are determined by significant indirect hyperbilirubinemia, an increase in the critical level of which leads to damage to the central nervous system with the development of disability or death.

In many countries of the world, the problem of hemolytic disease of the fetus and newborn has been solved due to the organization of pathogenetic preventive measures. At the same time, this issue remains open in our region. At the present stage, according to most authors, along with medical, the disease also has social significance. The aim of the study is to identify the features of the course of the clinical picture and laboratory parameters in various forms of hemolytic disease of the newborn.

Material and methods:

Examination of children was carried out on the basis of the Regional Perinatal Center of the Samarkand Region, the Department of Pathology of the Newborns of the Regional Children's Multidisciplinary Specialized Center.

50 newborns were examined, with a gestational age of 32 to 40 weeks, born from mothers with cI (0), as well as having different blood groups and Rh (-). The control group consisted of 20 healthy full-term newborns.

During the observation, laboratory parameters were studied: the levels of total bilirubin and its fractions, hemoglobin, the number of erythrocytes and reticulocytes.

The results of the study showed that the average age of mothers

Patients in both groups were approximately the same and averaged 26.8±0.4 and 27.1±0.6 years in groups 1 and 2. It was found that there were no primigravidas in group 1. 87.5% of women in group 1 had 3 or more pregnancies, while in group 2, basically all women were primigravidas (71.4%). The titers of anti-Rhesus antibodies during pregnancy had high numbers and ranged from 1:64 to 1:1024 in both groups.

The study of obstetric anamnesis and the main complications of pregnancy in mothers showed that in the compared groups, spontaneous miscarriages were observed before the onset of this pregnancy (56.2% and 50% of mothers, respectively). As you know, each pregnancy leads to an increase in the titer of antibodies in the mother, respectively, and the severity of hemolytic disease increases, which worsens the prognosis. The course of real pregnancy in women of the compared groups

The groups compared were mostly favorable. In some cases, pregnancy was complicated by ARI (18.7% and 21.4% of cases), chronic subcompensated placental insufficiency (18.7% - 14.3%), moderate or mild preeclampsia (1 case in each group, 6 .25% and 7.4%. Noteworthy is the high frequency of carriage of TORCH-complex markers (37.5 and 28.5% in each group, respectively).

All Patients of the main group at birth had indicators of physical development corresponding to the gestational age: body weight averaged 2503.45 ± 133.12 g, length 45.6 ± 1.28 cm. In the group of those born with incompatibility of the ABO system, body weight was slightly higher, but did not go beyond the confidence limits (2781.32±145.18 g, length 45.9±0.87 cm).

The average Apgar score at the 1st minute of life in children with Rh-conflict hemolytic disease of the newborn was 5.7 ± 0.6 points, at the 5th minute -6.9 ± 0.5 points, while in the comparison group the data indicators were slightly higher and amounted to 6.0±0.5 points, and at the 5th minute -7.1±0.6 points

Thus, newborns with Rh-conflict hemolytic disease in most cases (75%) were born in severe and moderate asphyxia, which in 25% of cases required intensive care. Only 25% of children were born without asphyxia. Whereas in the group with incompatibility for antigens of the ABO system, the state of asphyxia of severe and moderate severity was observed in half of the cases (50%), the rest of the children had no signs of asphyxia.

The distribution of patients by blood groups: in children with Rh-conflict hemolytic disease, A (II) blood type was more common - in 50% of children, then 0 (I) group - in 37.5% of children, somewhat less often B (III) group - in 12.5%, the AB (IV) group did not occur. In newborns with incompatibility for antigens of the ABO system, A (II) blood group was also most often noted - in 57.1% of children, then B (III) group - in 28.5%, AB (IV) group was observed in 14.2% cases.

When assessing the form and severity of hemolytic disease in children, it was found that 43.7% of children in group 1 and 28.5% of children in group 2 had a severe course of the icteric form of the disease, in the same percentage there was a severe course of the anemic form. The average severity of the disease was diagnosed in 31.2% of patients in group 1 and 37.5% of children in group 2, a mild course was detected in 18.7% and 37.5% of patients in groups 1 and 2, respectively.

Initial hematological parameters in newborns indicated that these children were born with anemia and high levels of bilirubin, which had a significant difference with the indicators. Thus, in children of the 1st group, blood hemoglobin with a moderate form averaged 157.34±14.78 g/l,

with a severe form - 143.2±5.8 g/l, on the 3rd day 120.0±11.4 and 107.0±3.4 g/l, respectively. Erythrocytes at birth in patients were 3.9±0.12*1012 in moderate form, 3.1±0.35*1012 in severe form and 2.9±0.15*1012 and 2.7 on the 3rd day. ±0.16*1012 respectively.

In children in the group with incompatibility for antigens of the AB0 system, the condition of the red blood germ was somewhat better. Thus, blood hemoglobin in moderate to severe form in group 2 was on average at the level of 161.12±11.66 g/l, in severe -146.5±6.5 g/l, on the 3rd day 132.4±10 .2 and 118.6±6.6 g/l, respectively. Erythrocytes at birth in patients were 4.9±0.15*1012 in moderate form, 4.1±0.45*1012 in severe form, and 4.9±0.53*1012 and 3.5 on the 3rd day. ±0.29*1012 respectively. At the same time, reticulocytosis (more than 35%) was detected in moderate and severe hemolytic disease of the newborn, both with Rh incompatibility and with incompatibility for antigens of the ABO system. The most important symptom characterizing hemolytic disease of the newborn is hyperbilirubinemia, which is detected at different times depending on the cause of hemolytic disease of the newborn. There is a direct dependence of the course of hemolytic disease on the level of Rh antibodies and blood groups of the mother and newborn.

In Rh-conflict hemolytic disease in 50% of patients its early appearance, in the first 6 hours of life, was noted more often than in AB0-hemolytic disease (29.5) In AB0-hemolytic disease, 50% of the observed jaundice was detected at the end of the first day of life.

When analyzing the level of bilirubin in the compared groups, it was revealed that in the group with Rh-conflict hemolytic disease, total blood bilirubin amounted to 40.1±8.75 μmol/l in the mild form, 54.38±2.6 μmol/l in the moderate form, and severe 76.9±24.1 μmol/l, while the hourly increase in bilirubin averaged 9.26±4.21 μmol/l.

With incompatibility for antigens of the AB0 system, the average level of bilirubin in mild form was 37.75±8.91 μmol/l,

With moderate severity 41.66±11.98 μmol/l, and with severe 60.8±18.3 μmol/l.

When analyzing the structure of the pathology in the observed children, attention is drawn to the high frequency (30.2% 28.5, respectively) of ischemic-hypoxic damage to the central nervous system of moderate and severe degrees. Pneumonia, violation of intestinal microbiocenosis (25% and 21.4%, respectively) were detected in some children. In the course of monitoring children with hemolytic disease of the newborn, it was found that 25% and 50%, respectively, in groups 1 and 2 of them required a single blood exchange operation, 76% and 50% of children (in groups 1 and 2) underwent two or more exchange transfusion operations blood.

During the neonatal period, corrective therapy was given, according to the standards of the disease: continuous phototherapy, infusion therapy, with the development of anemia, iron preparations.

The duration of stay of children in the intensive care unit averaged 3.9 ± 1.2 days, in the neonatology department 14.6 ± 1.2 days (from 10 to 21 days), with Rh conflict hemolytic anemia and 2.5 ± 0.8 days in the intensive care unit and 11.6 ± 0.9 days in the neonatology unit.

Conclusions: thus, children with hemolytic disease of the fetus according to the Rh factor are born in a more serious condition compared to hemolytic disease of the newborn according to the AB0 system and require intensive care from birth.

The course of hemolytic disease of the newborn is directly dependent on the indicators of "red blood" at birth.

Reference:

1. Алексеенкова М.В. Гемолитическая болезнь новорожденных: перинатальные исходы и отдаленные результаты развития детей: дис. …канд. мед. наук. М., 2005, 142с.
2. Володин Н.Н., Дегтярева А, В., Мухина Ю.Г. Лечение гепербилирубинемий у детей раннего возраста // Фарматека. 2012,№9/10.с24-28.
3. Конопляников А. Г. Современные аспекты патогенеза гемолитической болезни плода и новорожденного// Вести. РГМУ. 2008.No 6.С.38-42
4. Алимова О. Б., Карабаев А. Г., Ким О. В. Клинико-Иммунологические Особенности Острой Диареи У Детей С Синдромом Гемоколита //Central Asian Journal of Medical and Natural Science. – 2022. – Т. 3. – №. 5. – С. 617-623.
5. Tadjiev B., Xudayberdieva C. H., Alimova O. CLINICAL AND IMMUNOLOGICAL FEATURES OF ACUTE DIARRHEA IN CHILDREN WITH HEMOCOLITIS SYNDROME //Science and Innovation. – 2022. – Т. 1. – №. 4. – С. 214-217.
6. AO Bekmurodovna, XX Toshtemir o'g'li. SYNAPSES: ELECTRICAL OR CHEMICAL, WHAT FOR?//IQRO JURNALI – 2023. –Т. 1. -№. 2. – С. 361-373
7. Alimova O., Karabaev A., Kim O. CLINICAL AND IMMUNOLOGICAL FEATURES OF ACUTE DIARRHEA IN CHILDREN WITH HEMOCOLITIS SYNDROME //Theoretical aspects in the formation of pedagogical sciences. – 2022. – Т. 1. – №. 5. – С. 285-293.
8. Исматова М. Ш., Алимова О. Б. Возрастные Особенности Функциональной Межполушарной Асимметрии //INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY RESEARCH AND INNOVATIVE TECHNOLOGIES. – 2021. – Т. 1. – С. 121-123.
9. Исматова М., Юлдашева Ф., Алимова О. Влияние гибискуса и оральных препаратов на уровень глюкозы в крови //Общество и инновации. – 2021. – Т. 2. – №. 8/S. – С. 333-338.
10. Mamatkulovna V. A. et al. Pathoanatomic Changes in Helminthic Diseases of Karakul Sheep //Appetite. – Т. 10. – С. 11.
11. Расулова К. А., Насретдинова М. Т. ҲАЛҚУМДАГИ ЗАМБУРУҒЛИ ЗАРАРЛАНИШНИНГ САМАРАЛИ ДАВОЛАНИШИНИ БАҲОЛАШ //Биология ва тиббиёт муаммолари. - 2022. – №. 2(135). – С. 93-95.