HEMOLYTIC DISEASE OF NEWBORNS

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The article discusses erythroblastosis or hemolytic disease of newborns (GBN) – a prenatal pathology due to incompatibility of fetal and maternal blood by Rho(D) antigen and AB0 system. In the mother's body, antibodies directed against the child's red blood cells cause hemolysis or a sharp inhibition of their formation. Hemolytic anemia of the fetus as a result of Rh factor incompatibility can lead to serious complications or death in the prenatal period. In this regard, the prevention and treatment of GBH in newborns requires a specialized approach. The urgency of the problem of hemolytic diseases of newborns is due to the frequency of development, the severity of the course and complications leading to the death of the fetus or newborn.

Keywords: erythroblastosis, Rh factor AB0, Rh-sensabilization, hemolytic disease, GBN.

Hemolytic disease of the newborn (GBN) is a prenatal disease that is caused by isoimmunization as a result of incompatibility of fetal and maternal blood. Hemolytic disease of newborns manifests itself in the antenatal period and is a severe pathology of the newborn period and causes spontaneous abortions and stillbirths. Types of GBN in newborns according to etiological factors: according to the AB0 system, according to the rhesus system, according to antigens of other blood systems [1].

The blood groups of the AB0 system were discovered by a scientist from Vienna, Karl Landsteiner, in 1900. A blood type is an individual feature of a person that begins to form in the early stages of embryonic development and never changes throughout life. Antigens A and B are found on erythrocytes, in fetal tissues, the amniotic membrane of the placenta, amniotic fluid and other secretions: salivary and lacrimal fluids, sweat, semen. Starting from the second month of embryonic development, AB0 antigens are found in fetal erythrocytes. The greatest sensitivity to antibodies is achieved by 3 years of life. Agglutinable activity in full-term newborns is 1/5 of the activity of an adult.

In 1940, as a result of experimental work by Landsteiner and Wiener, the Rh factor (Rh factor) was discovered. Positive Rh factor occurs in 85% of people, negative in 15%. During gestation, the Rh factor is of particular importance. Women with Rh sensitization have an 85% chance of having a successful childbearing with a Rh-positive man. Hemolytic disease of newborns occurs in about 1 in 3,000 live births [2].

The Rh factor is a whole system of antigens:

- antigen D (Rh) is found in the blood of 85% of people;
- antigen C (Rh) is found in the blood of 70% of people;
- the E (Rh) antigen is found in the blood of 30% of people.

In the presence of these antigens, a person is Rh-positive. Rhesus antigens, which are introduced into the blood with Rh-sensitization, cause the body to produce antiresus antibodies. This happens 3-5 months after the antigens enter the bloodstream. Sensitization in the human body increases with the duration of the action of antigens [3].

Types of hemolytic disease according to clinical and morphological forms: edematous (hemolytic anemia with dropsy), jaundice (hemolytic anemia with jaundice), anemia (hemolytic anemia without dropsy and without jaundice). The form of the disease depends on the transplacental transfer of antibodies to the fetus.

According to the presence of complications, the following forms of GBPiN are distinguished:

- Uncomplicated,
- With complications: bilirubin encephalopathy - nuclear jaundice, bile thickening syndrome, hemorrhagic, edematous syndromes, kidney, adrenal, heart, liver damage, hypoglycemia [4].

Prenatal diagnosis includes collecting an obstetric history, assessing the number of pregnancies and their intervals, the presence of hemolytic disease in existing children, and determining the titer of antibodies during pregnancy. Postnatal diagnosis includes: isolation of newborns at risk of developing GBN; assessment of possible clinical manifestations. In laboratory diagnostics, the blood group and Rh factor in newborns are determined; biochemical blood analysis. Over the past 5 years, 50 developmental histories of newborns with hemolytic disease have been taken for analysis. The incidence due to isoimmunological incompatibility of the rhesus and AB0 system during this period was 4.93 per 1,000 live births. All cases of GBN were divided by type of conflict: 15 children were born with GBN, isoimmunological incompatibility according to the Rh factor and 35 children with GBN, isoimmunological incompatibility according to the AB0 system.

Hemolytic diseases of newborns remain a significant medical problem. GBN develops due to the ingestion of Rh-D antibodies from the mother to the fetus. Antenatal prophylaxis includes monitoring and preservation of the first pregnancy in a woman with Rh-sensitized blood without sensitization phenomena; keeping records of fetal development parameters with detected GBN; selection of individual treatment for pathology in a pregnant woman. Specific prevention of rhesus isoimmunization is carried out by intramuscular administration of anti-Rh(D)-immunoglobulin to the newborn in the first 72 hours after birth. Preconceptual prevention includes a genetic examination of the future father and mother with the determination of the phenotype of the child's father's blood. In case of a heterozygous rhesus factor genotype (RHD+/RHD-), an in vitro fertilization program is recommended for the father of the child in order to transfer Rhesus–sensitized embryos into the uterine cavity.

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