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ACTUAL PROBLEMS OF DIAGNOSIS OF HEMOLYTIC DISEASE IN NEWBORNS

Usmanova Munira Fayzullayevna

Assistant Of The Department Of №1 Pediatrics And Neonatology, Samarkand State Medical University, Uzbekistan

Sirojiddinova Khiromon Nuriddinovna

Assistant Candidate Of Medical Sciences (Phd) Of The Department Of Pediatrics №1 And Neonatology , Samarkand State Medical University, Uzbekistan

ABSTRACT: - the modern approach of antenatal care in pregnant women with rhesus-immunization means a timely diagnosis of the mutability of the rhesus (Rh) of the fetus through the blood of the mother, the detection of the anaemic syndrome and weight level of the fetus, the use of minimally invasive methods (diagnostic, therapeutic), as well as prevention of the development of immunization in pregnant women. The problem of rhesus-sensibilization in developed countries is rare, and only in immigrants.

Objective: to examine and analyze the literature data of foreign and local authors on the relevance, prevalence, use of non-invasive methods of Rh-sensibilization prevention of hemolytic disease of the fetus.

Search strategy: the search for information contained information such as regulatory documents, diagnostic protocols, and the conduct of RH-controversial pregnancy. Also in the databases Google Scholar, the Cochrane Library, PubMed, Library ru full-text scientific articles were used.

Inclusion criteria: randomized, cohort study data, systematic reviews, diagnostic protocols, and Rh-conflict pregnancy.

Exception criteria: practice, report, newspaper publications, articles describing theses.

Results: studies have shown that the prophylactic purpose and administration of anti-D-immunoglobulin, which is used during 28-30 weeks of pregnancy, significantly reduces the development of immunization after childbirth. Conclusion: due to the wide application of anti-D-immunoglobulin in pregnant women and family planning, it will be possible to reduce the frequency of immunization, but the goal will be achieved only if a clear Complex prevention of Rh-immunization is developed, in which the appearance of hemolytic disease of the fetus occurs. Nevertheless, the diagnosis and treatment of hemolytic disease remains an urgent problem and requires the use of new possibilities of modern medicine in the field of genetics, ultrasound diagnostics, invasive and non-invasive methods.

KEYWORDS: Rh-is immunization, all immunization, hemolytic disease of the fetus, prevention, non-invasive diagnostic methods, dopplerometry, perinatal outcome.

INTRODUCTION

among the immunologically identified complications of pregnancy, hemolytic disease of the fetus (fetal erythroblastosis) and hemolytic disease of newborns (HDN) occupy a leading place, which develops as a result of the development of erythrocyte hemolysis in the process of production of antibodies to erythrocytes antigens. According to literature, with this pathology, the mortality rate reaches 18%, and among women with Rh-sensitivity, hemolytic disease of newborns develops in 63% of cases. In the structure of perinatal death, HDN occupies 5 place [34].

During pregnancy, a small amount of embryonic blood can enter the mother's bloodstream, as a result of which the immune reaction of the mother with Rh-negative bleeding, the presence of Rh-positive erythrocytes in the fetus, occurs through the production of antibodies.

This condition is called sensitivity or alloimmunization. Sensibilization can occur at any time of pregnancy, in invasive processes, but most often in the third trimester and during childbirth, as well as without potential factors. Fetal transfusion can be 3% of pregnant women in the first trimester, 12% in the second and 45% in the third, sensitivity in 90% of cases is diagnosed after 28 weeks of pregnancy. It is currently known that some women may be sensitive before the beginning of the first pregnancy. In this group, from 55% to 80% "silent sensitivity", that is, it can develop without any risk [7,37].

If the fetus does not comply with the mother in the ABO system, the risk of sensitivity is small; bunda does not lead to the development of hemolytic disease in the fetus. The greatest risk of sensitization occurs in the first pregnancy and decreases in each subsequent pregnancy.

In repeated pregnancy, HDNis heavier than in the first pregnancy. The reason is that in the first pregnancy, the immune response to rhesus-sensibilization is formed faster and stronger [15]. In addition, other antigen systems cause hemolytic disease in newborns. Antigens such as Kell, Duffy, Kidd, MNSs, Lutheran, Diego, Xg, P, Ee and Cc are from shular sentence.

In the pathogenesis of rhesus-sensibilization, antibodies IgG 1 and IgG 3 have a special effect, they faollashtiradi the complement system and pass through the placenta [29,33].

In the postnatal period and subsequent years in newborns, the incidence has increased. If the fetus is not treated in time, after giving birth with a hemolytic disease, the long-term effect of bilirubin causes a violation of the brain system, consequently, cerebral palsy in children, deafness, speech delay, etc. Researchers Vinod K.Bhutani, Alvin Zipursky and co-authors evaluated infants who survived neonatal hyperbilirubinemia because of systematic interpretation and meta-analysis in 2010 Year.

To the main risk factor, they introduced a neonatal gemoliz, which came from a RH-conflict pregnancy period. In the United States, in 2004 year, the recording of fetal jaundice in newborns was achieved by introducing a systematic approach to this, in 169 units from 100000 living births, after the introduction of profilactics, this indicator significantly decreased and amounted to 40 / 100000 from the birth of a living. Due to the high level of obstetric-perinatal Service in high-income countries, the outcome for such babies was assessed as satisfactory [5].

Currently, the standard management of a fetus with a Rhesus-Negative blood factor consists in determining the titres of antibodies in the blood, knowing the ultrasound state of the fetus in dynamics (fetometry, dopplerometry) and treating intrauterine anemia [32,35]. Our interest has aroused a non-invasive diagnosis in the detection of fetal anemia, since the sensitive patient can further exacerbate the cordocentesis sensibilization, which is used for diagnostics and subsequent treatment in pregnant women. An absolute indicator for cordocentesis is the data of dopplerometry, indicating the presence of anemia in the fetus.

Risk factors for rhesus-immunization include blood transfusion, invasive diagnostic and therapeutic interventions for women with Rhesus-negative blood group (chorion biopsy, amniocentesis, cordocentesis), bleeding during pregnancy, antenatal death of the fetus, abdominal injury, fetal tumor [33].

Classification. Hemolytic disease that develops in the fetus, the degree of heaviness in it and the consequence depends on the form of HDN. Unfortunately, there are no clear criteria for the onset of the disease in pregnancy. Usually, the form of the disease after the birth of the fetus and the degree of weight are determined by the amount of hemoglobin in the fetus. The frequent form of imbalance is mainly assessed by the incompatibility of Rh faktor in the red blood cells of the mother and fetus (in 95% of cases); in the AB0 system, incompatibility is observed in fewer cases (according to blood groups); it is also observed that the unique blood factors do not correspond to small antigens [36,37].

According to clinical manifestations, edema (anemia with edema), jaundice (anemia with jaundice, frequent occurrence) and anemic form (anemia without jaundice and swelling) are distinguished. The tumor form of the hemolytic disease is a severe type of anemia, characterized by severe consequences, characterized by the development of cardiac decompensation, anasarka [36]. This clinical picture can occur in 25-30% of isoimmunization cases.

In some cases, anemia is manifested as a single clinical picture of the disease, in which hyperbilirubinemia or jaundice is not observed at all. But this situation does not deny the absence of HDN [26].

In addition, a separate complex form of HDN, which is called hemorrhagic syndrome, bilirubin intoxication, encephalopathy, bile syndrome, nuclear jaundice, which is accompanied by kidney and adrenal gland

damage, is also noted. The complication of the disease is severe. In children exposed to this condition, a sharp decrease in hearing and vision, a delay in mental development is also observed, up to the development of mental retardation.

Prophylactic of rezus-immunization

In different countries, the prevalence of people with Rh-negative bleeding is sharply different, for example, in India this indicator reaches 5%, in North America it reaches 15%. However, in low-prevalence countries, due to the lack of profiling programs, HDNis still an important cause of disease and perinatal death. In such countries, perinatal death and damage to brain structures are observed in 14% of cases of dead births with Rh-conflict pregnancy, among 50% of pregnancies born alive. In economically developed countries, the use of immunoglobulin D is a routine practice. However, despite the significant effectiveness of prevention, Rh-sensibilization cases have still been recorded due to non-compliance with the applicable protocols [7,9,12].

Special antenatal prophylaxis involves the use of anti-Rh (D) – immunoglobulin in pregnant women without Rh immunization [3,17].

Crowther, Caroline A. and his co-authors conducted a randomized study in 6 pregnant women who received anti-D-immunoglobulin, belonging to the Rh-Negative blood group, but without sensibilization. The results showed that high doses of prophylactics (up to 200-mcg) were more effective in preventing Rh - conflict in subsequent pregnancies than low doses (up to 50-mcg) [6,11]. The ways of using Anti-D-immunoglobulin are equally effective, whether intramuscularly or intravenously, depending on the amount selected, the presence of the drug and the desire of the woman [8,23,25].

Many indications that have a prophylactic purpose, also recommend the use of immunoglobulin to all sensibilizational women after childbirth, it is also possible to do during 72 hours, when the Rh-positive factor in the fetus is detected. If anti-D-immunoglobulin is not taken during these periods, it can be taken up to an additional 28 days [14,21,30].

Diagnose

The amount of titration of antibodies in the fetus and newborns, as well as their prevalence, was determined by Rhonda Zwingerman, Venu Jain, Judith Hannon and others among the inhabitants of Canada from 2006 to 2010 years. Of the negative 34 cases, a total of 16 cases were identified, which led to the most frequent complications of the fetus and newborn. In all severe cases, the maximum antithesis titr was > 8. Although Anti-E was found in 48,5% of cases and anti-D 6,8%, the latter significantly caused the emergence of hemolytic disease in the fetus and newborns [4,16,31].

Amniocentesis is less invasive than cordocentesis, but the reliability of bilirubin measurements in amniotic fluid up to 27 weeks of pregnancy is lower [21,22]. There is no data on the optimal sampling frequency for amniocentesis and cordocentesis. In addition, these treatments may be associated with worsening maternal symptoms.

Ultrasound examination of the fetus shows the severity and timing of the diagnosis of hemolytic disease, the presence of such clinical signs as ascites, gidrothorax, gidropericard, subcutaneous edema, double contours of the fetal head, increased intestinal exogenicity.

It is known that even with severe anemia of the fetus, edema can occur without development, since the hemolysis of

erythrocytes develops at lightning speed. On the contrary, the detection of edema in the fetus can not be compared with the severity of anemia. To date, due to the wide prevalence of cordocentesis in obstetric practice, diagnosis, as well as treatment with hemolytic disease, has significantly expanded [13,40].

Cordocentesis is also not carried out at the risk of miscarriage of the fetus. In addition, this treatment is associated with certain complications, bleeding from injection points, violation of the heart rhythm of the fetus, chorioamnionitis, hematoma, termination of pregnancy, etc. [24,25,27]. In addition, all invasive methods can provoke Rh-isoimmunization of a pregnant woman.

Dopplerometry this is a noninvasive prenatal diagnostic method, which is used for 20 years in determining the peak rate of blood flow in the middle-brain artery of the fetus when detecting anemia syndrome. Its effectiveness is favorable for the non-use of invasive methods (amniocentesis, cordocentesis) in Rh-conflict pregnancy [1,2,4,19].

The effect is based increasing blood flow rate in the middle brain artery, increasing blood flow out of the heart and reducing blood clotting, Ven saturation of venous blood, reduction of heart pressure and cause peripheral vasodelytasia. And such a process does not allow the heart to be saturated with oxygen and there will be pressure [36,39]. Thus, it is expedient to use noninvasive diagnostics of fetal anemia by increasing the rate of blood flow in the middle cerebral artery, aorta, lower hollow vein, venous canal and spleen artery in the current period [20,27].

Dig Aepkes, M. D., P. A prospective, international multicenter study was conducted on Rh-conflict pregnancies (antibody titr 1:64) by Gareth Seaward and others. They compared fetal anemia through dopplerometry and amniocentesis in the middle cerebral artery. Control of the results was carried out by determining the level of hemoglobin in the blood of the fetus. Alternatively, as an alternative, ultrasound examinations of the liver and spleen of the fetus were used, these examinations gave a lot of false results. It was concluded that dopplerometry of blood flow oiling in the middle cerebral artery of the fetus does not allow in the measurement of amniotic fluid in the fetal anemia [10,22,38].

CONCLUSION

Thus, the analysis of literature sources confirms that the main priorities in the management of patients with Rh-isoimmunization are the timely detection and treatment of hemolytic disease of the fetus in order to prevent the risk of sensitivity in the corresponding groups of women, to ensure the possibility of continuing pregnancy. According to the literature, the severity of the hemolytic disease of the fetus has no direct relationship to the amount of titration of the antibodies, the nature of its rejection. It is desirable to check the antibody in different dynamic cases.

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