ISSN 1817-7883 eISSN 2522-9354

DOI: 10.31393/reports-vnmedical-2021-25(1)-11
UDC: 616.155.294-053.31

IMMUNE THROMBOCYTOPENIA IN A NEWBORN - A CLINICAL CASE IN PEDIATRICS

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Received: January 04, 2021; Accepted February 04, 2021

Annotation. *The aim of the study was to analyze with the help of literature data the features of the clinical course of immune thrombocytopenia, to monitor the mechanisms of reactions, as well as to reproduce them on their own observation. Features of clinical course and differential diagnosis of immune thrombocytopenia are described. It is established that the main manifestation of this pathology is hemorrhagic syndrome, accompanied by skin hemorrhages, bleeding, possible hepatosplenomegaly, jaundice. Detection of antiplatelet antibodies is used to confirm the diagnosis.*
Keywords: *children, immune thrombocytopenia, antiplatelet antibodies, hemorrhagic syndrome.*

Introduction

The basis of neonatal immune thrombocytopenia is the transfer of the fetus through the placenta from the mother to antiplatelet antibodies. If the mother has immune changes in the body (autoimmune thrombocytopenia or systemic lupus erythematosus), there is a risk of transplacental transfer to the fetus of maternal autoimmune antiplatelet antibodies of class Ig G. This develops a transimmune form of neonatal thrombocytopenia. The risk of giving birth to a child with transimmune neonatal thrombocytopenia in women with autoimmune thrombocytopenia reaches 30-75% [2].

Neonatal autoimmune thrombocytopenia is the most common cause of thrombocytopenia and intracranial hemorrhage in newborns. Clinical manifestations range from moderate thrombocytopenia to severe life-threatening bleeding. Because maternal screening is not performed, most cases are diagnosed in the first child. Despite intensive research, there is no clear strategy for prevention and treatment. Diagnosis of neonatal autoimmune thrombocytopenia is usually based on medical history and blood tests. Although maternal immune thrombocytopenic purpura does not carry a high risk of perinatal hemorrhage, it can lead to neonatal thrombocytopenia, mostly mild to moderate. Clinical manifestations range from asymptomatic to mucocutaneous signs of thrombocytopenia and can last from a week to a month, requiring long-term monitoring [6, 8].

Severe forms of thrombocytopenia are detected among 15% of cases, with 1.5% having intracranial hemorrhage. It has been shown that the degree of reduction in the level of platelets in the mother during pregnancy does not affect the severity of transimmune neonatal thrombocytopenia. When the mother and fetus are incompatible with Human Platelet Antigens (HPA), the woman is immunized and produces antibodies (Ig G) to the fetal antigens, which are not present on her platelets, but which are inherited by the child from the father (HPA1). Subsequently, antibodies are transmitted through the placenta (possible sensitization and similarity to the mechanism of development of hemolytic disease of newborns by rhesus conflict), bind to fetal platelets, which leads to their destruction in utero and reaches 20%. Alloisoimmune thrombocytopenia develops. The development of isoimmune thrombocytopenia is possible in the first pregnancy, but the most severe course of the disease is observed in subsequent pregnancies. If isoimmune thrombocytopenia is detected in n / n, parents should be warned about the high risk of giving birth to children with severe forms of the disease [3, 4].

Diagnosis of isoimmune thrombocytopenia is based on clarification of the anamnesis (indication of previous pregnancy, repeated platelet transfusion or birth of children with isoimmune thrombocytopenia), as well as on the results of immuno-hematological examination.

The causes of non-immune thrombocytopenias are intrauterine infections (cytomegalovirus infection, herpes, rubella, toxoplasmosis, etc.), severe postnatal infections (sepsis, necrotizing enterocolitis), congenital bone marrow aplasia (Fanconi anaemia, Landolt syndrome, etc.), congenital leukemia, thrombohemorrhagic syndromes, syndromic pathology (Kasabach-Merritt syndrome, Wiskott-Aldrich syndrome), drug-induced thrombocytopenia [1].

Hemorrhagic syndromes in children remain the most difficult for nosological verification in neonatal practice.

Most hemorrhagic disorders are associated with a deficiency of K-dependent coagulation factors (neonatal hemorrhagic disease), hereditary (hemophilia) and acquired coagulopathies (DIC syndrome), congenital and postnatal infections [5].

According to the etiology, the most common cause of neonatal thrombocytopenia is infectious and inflammatory diseases of the newborn (64.8-71.8%). They are most commonly associated with inhibition of the megakaryocyte sprout, insufficient platelet production by the bone marrow, suppression of the megakaryocyte sprouts by pathogen toxins, or DIC syndrome. The severity of the manifestations

depends on the period of gestation, in which the infectious agent affected the fetus, as well as the type of pathogen.

Next in frequency are perinatal hypoxia (14.0%) and immune variants of thrombocytopenia (6.0%). Among the latter are alloimmune, autoimmune, isoimmune, transplacental transfer of platelet antibodies from mother to fetus and hapten, due to medication.

To confirm the diagnosis of immune thrombocytopenia, a method of detecting antiplatelet antibodies is used. They in turn can be alloimmune or autoimmune in nature. In this case, autoimmune antibodies are freely circulating in the blood plasma, fixed on autologous platelets and occur either separately or in combination [7].

The aim of the study was to analyze with the help of literature data the features of the clinical course of immune thrombocytopenia, to monitor the mechanisms of reactions, as well as to reproduce them on their own observation.

Materials and methods

Here is our own observation of a patient diagnosed with immune thrombocytopenia. Child M. 5 day old, girl. She was admitted to the Department of Neonatal Pathology with a diagnosis of cytomegalovirus infection (CMV) with thrombocytopenia. Perinatal history: 1 pregnancy, threat of abortion at 5-6 weeks, anemia, acute respiratory disease with fever 38.6°C, was treated on an outpatient basis; urgent delivery at 38 weeks, Apgar score 7-8 points, weight 3250 g, height 51 cm; childbirth is physiological, immediately after birth attached to the breast.

Results. Discussion

Against the background of a satisfactory condition in the maternity hospital during the first day there was a hemorrhagic syndrome in the form of linearly located petechial elements of the rash on the skin with bluish spots in the neck, groin, pelvic cyst on the right and left, close to clothing. Dicynone was introduced and paraclinical examinations were performed.

Clinical blood test: Hb - 189 g/l, er - 5.1 * 10^{12}/l, l - 15.6 * 10^{9}, n - 56%, l - 32%, m - 8%, e - 2%, b - 2 %, thrombus - 65 * 10^{9}/l.

Coagulogram: APTT - 36 s., PTI - 103%, Thrombin time - 16 s., Fibrinogen - 3.2 g/l.

Neurosonography (NSG) was performed to rule out subepindimal hemorrhage. At the further research of the coagulogram the compensated plasma hemostasis was noted that gave the chance to exclude group of coagulopathies.

Up to three days there was a syndrome of respiratory disorders (SRD), caused by transient tachypnea. The child underwent non-invasive respiratory support by CIPAP. In the dynamics of SRD (according to the Downes scale) regressed, respiratory support was completed within 4 days, saturation disorders and pathological apnea were not observed. The differential diagnosis between transient tachypnea, congenital pneumonia, sepsis, congenital heart defects, birth trauma of the brain, which are manifested by SRD in newborns.

3 day of life. When the umbilical cord remained, there was a short-term minor bleeding, which stopped on its own.

Clinical blood test: Hb - 180 g/l, er - 4,15*10^{12}/l, l - 12,4 * 10^{9}, n - 58%, lim - 30%, m - 10%, e - 2%, b - 2%, thrombus - 52 * 10^{9}/l

Elisa: Anti CMV IgM - not detected; Anti CMV IgG - 11.8.

No specific immunoglobulins were detected for the remaining TORCH infections. On the fourth day, the child was transferred to the pathology department of Vinnytsia Regional Children's Clinical Hospital for specific anticytomegalovirus therapy.

The presence of hemorrhagic skin syndrome with thrombocytopenia and Anti CMV IgG, IgM was regarded as a manifestation of intrauterine cytomegalovirus infection.

Objective status on the 5th day: The condition of the child is moderate. Is on breastfeeding, breast sucking actively, restored physiological weight loss. Sleep is restful. Congenital reflexes are caused, the cry is loud, out of flexor. Tonus, turgor and motor activity are satisfactory.

Petechial rash on the skin of the face, torso, extremities, single bruises. Hematomas at the injection site are clinically noted. Above the lungs - puerile respiratory, RR - 52/min. Heart tones are rhythmic, pure, heart rate - 145/min. We live soft, palpable, liver +1.5 cm, spleen is not palpable. Umbilical wound - with hemorrhagic crust, the entrance roller is not inflamed. Physiological stools without features.

From the 10th day in the clinical analysis of blood there was a slight positive trend: the number of platelets increased to 80x109/l. hemostasis disorders were not observed. NSG in dynamics - without deviations. The child was examined by a neurologist - no pathological neurological symptoms were detected. Subsequently, the newborn was observed by a hematologist. The results of additional examinations: the number of reticulocytes, Coombs' test, LDH within the normative values; there were no markers of infection (CRP, procalcitonin), PCR (bacterial, fungal, viral screening) - negative. Studies of electrolytes, gases and acid-base status of blood revealed no abnormalities.

On repeated NSG and examination of the fundus (at risk of intracranial hemorrhage), chest radiography - no abnormalities.

During blood sampling in the dynamics for clinical analysis, there was a prolongation of the duration of bleeding and a decrease in platelet count. Against the background of the therapy (dicinone, intravenous immunoglobulin) the number of platelets increased to 100*109/l. Only isolated elements of petechial rash on the skin of the anterior abdominal wall were noted. The injection sites did not bleed.

The absence of changes in the coagulogram in the dynamics (1, 3, 5, 10 days) and the differential diagnosis

led to the conclusion that the cause of hemorrhagic syndrome in the newborn was thrombocytopenia without the participation of plasma hemostasis. Consistent diagnostic search in the dynamics allowed to get a clear idea of the pathogenesis of thrombocytopenia in the newborn, to justify the diagnosis and the correct treatment tactics.

Conclusions and prospects for further development

1. The management of newborns with immune thrombocytopenia involves the need for mandatory daily monitoring of platelet counts during the early neonatal period.

2. In severe thrombocytopenia, it is mandatory to monitor the neurological status of the newborn, conduct NSG and examination of the fundus in the dynamics.

3. At decrease in thrombocytes to $50*10^9$/l and below with progression of a hemorrhagic syndrome appointment of intravenous immunoglobulin is shown.

4. At critically low level of thrombocytes and lack of effect from the carried-out therapy introduction of the washed maternal thrombocytes is shown.

At a thrombocytopenia at the newborn it is necessary to carry out differential diagnosis with a number of pathological states, considering that the basis of neonatal thrombocytopenias can be immune mechanisms. Their timely verification will avoid diagnostic errors and inadequate treatment.

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ІМУННА ТРОМБОЦИТОПЕНІЯ У НОВОНАРОДЖЕНОГО - КЛІНІЧНИЙ ПРИКЛАД В ПЕДІАТРІЇ

Дудник В. М., Ізюмець О. І., Фурман В. Г., Куцак О. В., Стецун О. О.

Анотація. *Метою дослідження було проаналізувати за допомогою літературних даних особливості клінічного перебігу імунної тромбоцитопенії, відслідкувати механізми реакцій, а також відтворити їх на власному спостереженні. Описано особливості клінічного перебігу та диференційної діагностики імунної тромбоцитопенії. Описано особливості клінічного перебігу та диференційної діагностики імунної тромбоцитопенії. Встановлено, що основним проявом даної патології є геморагічний синдром, що супроводжується шкірними геморагіями, кровотечою, можливою гепатоспленомегалією, жовтяницею. Для підтвердження діагнозу використовують виявлення антитромбоцитарних антитіл.*

Ключові слова: *діти, імунна тромбоцитопенія, антитромбоцитарні антитіла, геморагічний синдром.*