European Journal of Research Development and Sustainability (EJRDS)
Available Online at: https://www.scholarzest.com
Vol. 4 No. 4, April 2023
ISSN: 2660-5570

THE STATE OF THE PLATELETE HEMOSTASIS IN PREGNANT WOMEN WITH HEMORRHAGIC SINDROME

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Article history:

Received: 22th February 2023
Accepted: 22th March 2023
Published: 26th April 2023

Abstract:

In pregnant women with hemorrhagic syndrome hypocoagulative changes in thrombocytic hemostasis were found in 60.8%. Thrombocytopenia was diagnosed in 29.4% of cases and thrombocytopathy in 31.4%. In 7.8%, the cause of thrombocytopenia was immune thrombocytopenic purpura, in 9.8% it was secondary thrombocytopenia due to internal diseases and in 11.8% it was gestational thrombocytopenia.

Keywords: Pregnancy, thrombocytopenia, thrombocytopathy, thrombocytic hemostasis

INTRODUCTION. Physiologically proceeding pregnancy with an increase in the gestational age is associated with an adaptive restructuring in the hemostatic system, characterized by an increase in the total coagulation potential of the blood and a tension in the state of anticoagulant protection. These hemostasiological changes are the physiological adaptation of the woman's body to ensure the normal functioning of the fetoplacental complex [10, 11, 21].

Thrombogemorragic complications are a constant companion of any obstetric and gynecological pathology and largely determine the course and outcome of pregnancy and childbirth. Trombohemorragic and non-rombotic manifestations of critical states in obstetrics are the result of the disseminated intravascular blood coagulation (DVS syndrome) and other hemostasis pathology [20, 22].

Obstetric bleeding continues to be the most severe obstetric pathology and occupies one of the first places in the structure of maternal mortality and postpartum disability of women. In fact, there are no clear and simple criteria for predicting obstetric bleeding, reliable methods of protection.

Reserves for reducing maternal mortality during blood loss are far from exhausted. Prevention of obstetric bleeding is most effective before bleeding, so you should expand the examination of pregnant women by identifying women with impaired hemostasis [12]. The main reserve can be considered the correctly organized prevention of obstetric bleeding, starting from the stage of monitoring pregnant women [1, 2].

The process of platelet formation in the body is called thrombocytopoiesis [3]. The mother cell of platelets is a megacariocytic cell. Megacariocytic cell elements are formed, differentiated, and mature from myeloid Aldi cells in the bone cuticle. The main stimulants of megacariocytopoiesis are: IL-1, IL-3, IL-4, IL-6, IL-11, collonia-stimulating factors, erythropoietin, thrombopoietin. Thrombocytopoiesis is based on reverse bog prinspi: increased platelets in the blood inhibit thrombocytopoiesis, with thrombocytopenia stimulating platelet formation. In bone burial, a megakariocyte cell undergoes several morphological stages of differentiation: megakarioblasts, promegacariocytes and megacariocytes [5, 6, 15-17].

Megacariocyte is a giant polyploid cell with a diameter of 60-120 μm. Megacariocyte is a large platelet-preserving cell with a polymorphic nucleus, a broad, pinkish cytoplasm [4, 7, 8]. The main function of megacariocytes is to form platelets and keep their number constant. Up to 5,000 platelets are secreted from a single megacariocyte [9]. In the norm, 60-70% of megacariocytes are active, that is, form platelets. About 80% of platelets are in the blood and 20% are in the spleen. Platelets live for 7-8 days. The platelet is a non-nuclear, 2-4 μm diameter cell involved in hemostasis and blood clotting. Platelet count in a healthy person is 180-320x10^9/l. Platelets are yumalogand oval in shape, with the cytoplasm painted in a light purple hyalomer and central pink - purple granulomer parts was founded [18, 19]. Platelet functions: angiotrophic, adgesia, aggregation, clot retraction, vasoconstriction [13, 14].

Currently, there is a need for a comprehensive in-depth assessment of hemostasiological changes in pregnancy. This will allow a deeper understanding of the mechanisms of hemostasiological homeostasis, predicting the risk of developing longer-term complications.

PURPOSE OF THE STUDY: To increase the effectiveness of laboratory diagnostics of the pathology of the platelet-citar link in pregnant women.

MATERIALS AND METHODS. The object of the study was pregnant women who are in the Department of Pathology of pregnant women of the TMA Clinic. The study included 51 pregnant women with hemorrhagic syndrome in the period 2018 January-December. The examined women were in different pregnancy periods: 21 pregnant women were between the ages of 19 and 24, 19 pregnant women were 25-30 years old, 7 pregnant women 31-36 years old and 4 pregnant women aged 37-42 years old. The average age of patients was – 28.46 ± 4.2 years.

A different number of pregnancies in women with hemorrhagic syndrome were noted. So, patients with the first pregnancy were 22 (43.1%), the second pregnancy – 20 (39.2%) patients, the third pregnancy – 7 (13.7%) and fourth pregnancy (. Mostly patients with the first pregnancy 43.1% aged 25-30 years.

In 15 patients, thrombocytophenia was detected, which were included in group I, group II made up 16 pregnant women with a diagnosis of thrombocytopathy, in 20 patients of group III the platelet cell of hemostasis was normal. The control group consisted of 15 healthy pregnant women, comparable in age and gender.

All pregnant women were examined with a general blood test with platelet counts and their morphological characteristics, platelet retraction, adhesion, and platelet aggregation.

THE MAIN RESULTS. To determine the hemorrhagic syndrome, complaints, anamnesis of life and disease, objective data of pregnant women were studied.

Complaints of patients were divided into hemorrhagic syndrome and anemic syndrome. In order to detect hemorrhagic syndrome, in addition to complaints, special attention was paid to the patient's anamnesis: bleeding from gums, nose, menorrhage in anamnesis, bleeding from the gastrointestinal tract, renal bleeding, and bruising on the skin. Anemic syndrome includes fatigue, fatigue, dizziness, headaches, heartbeat, heart disease, heart disease, tinnitus, tinnitus.

During an objective examination, attention was paid to the condition and color of the conjuktiva and skin, the presence of hematomas, petechia, bleeding, their size, symmetry, and the reasons for the appearance.

When collecting clinical information, attention was paid to the nature of the manifestations of the disease, the course of the disease, the signs of combined diseases were identified, and differential diagnostics of hemorrhagic syndrome was also carried out.

The patients we examined also observed characteristic general anemic symptoms: fatigue, fatigue, dizziness, headaches, heartbeat, heart disease, heart disease, tinnitus, shortness of breath.

The pallorousness of the skin and mucous membranes, hemorrhagic rashes on the skin, and bleeding of the gums were objectively noted.

A study of the general blood test showed that in group I there is a clear tendency towards pronounced thrombocytopenia, so the average platelet values in pregnant women of group I were 55.4 ± 6.8x10^9/l, and in patients II, III and the control groups, the number of platelets was respectively within normal limits: in group II 196.4 ± 7.2x10^9/l, in group III 221.4 ± 7.5x10^9/l, in the control group 256.6 ± 7.2x10^9/l.

As you know, platelet therapy with the number of platelets more than 100 - 150x10^9/l occurs asymptomatic. In this case, usually there is no data on thrombocytope in the history. The clinical picture of thrombocytopenia with a platelet count of 70-100 x10^9/l is insignificant in the form of nosebleeds or bruises on the body after minor injuries. With platelets below 50-100 x10^9/l, you can see a detailed clinical picture of thrombocytopenia in the form of causeless hemorrhages on the body, bow, gums, intestinal, renal and other bleeding. As you can see, the severity of the symptoms is directly proportional to the degree of thrombocytopenia.

Immune thrombocytopenic purpura (ITP) was 7.8% (4 pregnant) from all plateletopene states. The disease was a frequent cause of hemorrhagic complications in the first and second trimesters.

The reason for secondary thrombocytopenia in 5 pregnant women (9.8%) during pregnancy was as follows: in 1 patient cirrhosis of the liver, in 1 patient autoimmune diseases (SKV), in 2 patients induced thrombocytopenia (drugs), 1 patient has a deficiency of B12 nutrients and folic acid.

Among 6 (11.8%) pregnant women, gestational thrombocytopenia was diagnosed in 2 patients with preeclampsia and in 4 patients with eclampsia,. In 2 patients, the diagnosis was made in the second half of pregnancy, and in 4 patients in the third trimester.

A study of the functional properties of platelets showed that in patients of the second group, compared with the control group, there is a distinct decrease in the state of adhesive-aggregate properties of platelets. An pronounced decrease in the aggregation properties of platelets was observed in group II. In the first breeding of hemolizate-aggregation tests in I, III and control groups, the aggregation time was within normal limits: 14.93 ± 0.66 sec, 15.43 + 0.72 sec. and 16.28 ± 0.12 sec, respectively, and in group II, this figure was extended to 48.22 ± 0.68 sec.

It also clearly showed a hemolizate-aggregation test (GAT) in the second breeding: a reaction is revealed in the form of a reliable suppression of the aggregation ability of platelets. So, in groups I and III, the aggregation time was normal and amounted to 30.44 ± 0.87 sec and 28.16 ± 0.72 sec. accordingly, in group II this indicator was extended to 72.2 ± 0.46 sec., while in control this indicator is reliably lower and equal to 29.34 ± 0.79 sec (table 1).

Table 1

The condition of vascular-trombocytic hemostasis in pregnant women with hemorrhagic syndrome, M ± m

Hemostasis indicators	Control n=15	I group n=50	II group n=45	III group n=36
Thrombocytes, 10^9/l	256,6± 7,2	55,4± 6,8**	196,4± 7,2**	221,4± 7,5**
GAT 10^{-2}, sec	14,93 ± 0,66	15,43+0,72*	38,22±0,68**	16,28±0,12**
GAT 10^{-6}, sec	29,34±0,79	30,44±0,87*	52,2 ± 0,46**	28,16±0,72*

Note: * - the reliability of the difference between pregnant women with hemorrhagic syndrome and with the control group (* r < 0.05), (** r < 0.001)

CONCLUSIONS:

1. Our study of blood cell platelet hemostasis in 51 pregnant women with hemorrhagic syndrome showed significant deviations in the direction of the hypociagal shift in 60.8% of cases. This manifested itself in thrombocytopenia, a decrease in the adhesive and aggregation properties of platelets.
2. Among the examined 51 pregnant women with hemorrhagic syndrome in 15 (29.4%) patients were diagnosed with thrombocytopia, in 16 (31.4%) pregnant women with thrombocytopathy.
3. The cause of thrombocytopenia in 7.8% of cases was immune thrombocytopenic purpura, in 9.8% secondary thrombocytophenia due to diseases of internal organs and in 11.8% gestational thrombocytopenia.

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