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ASSESSMENT OF PLATELET ACTIVITY IN WOMEN WITH MISCARRIAGE***Kodirova Dildora Allayorovna****Scientific and production enterprise "Kon preparatlari", Uzbekistan****Ubaydullayeva Zuxra Ibragimovna****Scientific and production enterprise "Kon preparatlari", Uzbekistan****Xadjimetov Abdugafur Akhatovich****Tashkent State Dental Institute, Uzbekistan*

ABOUT ARTICLE**Key words:** Miscarriage, platelet morphology.**Received:** 02.01.2023**Accepted:** 06.01.2023**Published:** 11.01.2023**Abstract:** The purpose of this study is to evaluate the functional state of platelets in women with non-carrying. We examined 78 women aged 18 to 26 years, 24 of whom (Group 1) were patients with an incipient miscarriage, receiving folic acid preparations and B vitamins and (Group 2) with aborted pregnancy. Intravascular platelet activity (VAT) was determined visually using a phase-contrast microscope according to Shitikova. It has been established that when pregnancy is not carried, a consistently high activity of platelets is maintained, which is largely associated with the constancy of the level of sensitivity of their receptors to exogenous influences.

INTRODUCTION

Non-carrying of pregnancy is one of the urgent problems of modern obstetrics and gynecology. In recent years, the frequency of not carrying a pregnancy for several years is 15-20% of all desired pregnancies and does not tend to decrease [2, 3,6]. Despite large-scale studies aimed at studying the causes of impaired reproductive function in women and developing methods that restore fertility, there is no unified system that includes a variety of etiological factors. Therefore, it is relevant to search for new links that reveal the pathogenesis of miscarriage from the standpoint of violations in the system, blood rheology and the development of new diagnostic methods based on them.

The normal course of the gestational period in pregnant women is largely determined by the activity of platelet hemostasis, which, in turn, determines adequate rheological properties of the blood. At the same time, platelet functions can change depending on numerous syndromes associated with habitual miscarriage: anatomical anomalies, hormonal disorders, chromosomal defects, disorders in the state of the blood coagulation system. At the same time, the activity of platelet functions in women with miscarriage remains insufficiently studied. The dynamics of the aggregation activity of their platelets under the influence of various inductors and their combinations, which are present in blood flow conditions, has not been evaluated. In this contingent of pregnant women, the severity of intravascular activity of platelets *in vivo*, which determines the liquid properties of blood and its fluidity through the vessels, has not been previously assessed either. In this regard, the purpose of the study was formulated: to determine the activity of platelet functions in women whose pregnancy was complicated by miscarriage.

MATERIAL AND RESEARCH METHODS

We examined 78 women aged 18 to 26 years, 24 of whom (Group 1) were patients with a miscarriage, who received folic acid preparations and B vitamins, in order to correct hyperhomocysteinemia and maintained their pregnancy. In 54 patients (Group 2), with an interrupted pregnancy. The gestational age of women in the control, first and second groups was 8.27 ± 1.60 , 7.50 ± 2.19 , 7.60 ± 2.40 weeks, respectively. The control group consisted of 18 patients with normal gestational process. All patients were counted the number of platelets in venous blood. Intravascular activity of platelets (vAT) was determined visually using a phase-contrast microscope [9, 28] according to Shitikova A.S. et al. (1997).

Statistical studies were performed using the Stadia program. Data are presented as arithmetic means and mean error ($M \pm m$). Significance of differences in mean values was assessed by Student's t-test. The critical level of significance "p" when testing statistical hypotheses was taken equal to 0.05.

RESEARCH RESULTS AND DISCUSSION

In a morphological study of platelets in pregnant women, the first visible manifestation of platelet activation is a change in their shape, which can serve to adequately assess this process, both induced *in vitro* and developing in the body.

In the vascular bed, in the absence of pathological activating influences, the vast majority of intact platelets, called discocytes, have a characteristic discoid or lentil shape and an almost smooth surface.

The characteristic change in shape during the induction of hemostatic reactions of platelets reflects certain processes of their internal ultrastructural and biochemical restructuring.

At the same time, a typical sequence of changes develops: from the form of an intact platelet - a discocyte to activated cells - a discoechinocyte, in which processes appear on the surface, and then to a spherocyte or spheroechinocyte. In the latter, not only the shape becomes more and more spherical, but the number of processes also increases. In the course of adhesion on the glass, platelets spread out - their diameter increases by 1.5-2 times; in such cells, individual granules become more clearly visible, the number of which can reach 20-30 per 1 cell. At the same time, there is a gradual shift of the granules to the periphery of platelets. The granules then bind to the cell wall and exit the platelet. After the release of the granules, the platelets change shape: from flattened, they become more rounded and form short outgrowths, which can subsequently elongate. Such platelets have locomotor (motor) activity and can collect in tight clusters on a glass slide.

In healthy individuals included in the observation group, when assessing platelet morphology, it was found that the main indicators were within the physiological norm. The level of discocytes in the blood of healthy people was $85.1 \pm 0.10\%$, the level of discoechinocytes was $9.1 + 0.14\%$, spherocytes - $2.9 + 0.15\%$, spheroechinocytes - $1.8 + 0.18\%$ and bipolar forms - $1.1+0.10\%$ of platelets also remained stable in the bloodstream (Table 1). At the same time, the sum of active forms of platelets averaged $14.9 \pm 0.15\%$ in the examined patients. When analyzing the morphology of platelets in patients of group 1, the following picture was noted in blood smears: discocytes - $76.4 + 0.19\%$, discoechinocytes - $15.2 + 0.15\%$, spherocytes - $3.9 + 0.11\%$ and spheroechinocytes - $3.4+0.11\%$. An increase in the amount of active forms of platelets and the number of platelets in aggregates was also noted.

Table-1

Intravascular platelet activity in pregnant women

Parametr	1-group n=24	2-group n=54	Healthy people n=18
Discocytes, %	76,4+0,19	69,1+0,19	85,1+0,10
Disco echinocytes, %	15,2+0,15	19,8+0,15	9,1+0,14
Spherocytes, %	3,9+0,11	4,8+0,11	2,9+ 0,15
Sphero-echinocytes, %	3,4+0,11	5.1+0,11	1,8+ 0,18
Bipolar forms, %	1,1+0,09	1,2+0,09	1,1+0,10
Sum of Active Forms, %	22,3+1,57	34,3+2,13	12,9+ 0,85

The number of platelets in aggregates, %	8,9+0,67	18,3+1,12	5,8+ 0,42
The number of small aggregates of 2-3 platelets, per 100 free-lying platelets	3,4 +0,09	5,6+0,09	2,8+ 0,14
The number of medium and large aggregates, 4 or more platelets, per 100 free-lying platelets	0,14+0,014	0,26+0,014	0,06+ 0,012

In the 2nd group of examined patients, more pronounced changes were noted in relation to all studied indicators of platelet morphology. Consequently, in women with miscarriage, there is a high functional activity of platelets, which is one of the causes of endotheliocyte dysfunction.

DISCUSSION OF THE RESULTS

Platelets (platelets) are non-nuclear blood cells involved in hemostasis. To perform their specific functions, they need to be activated after damage to the endothelium and exposure of the subendothelial structures of blood vessels, as well as under the action of hormones. Activation of platelets leads, along with a rapid change in their shape, which becomes spherical (spherocyte) with numerous processes on the surface (spherocinocyte), also to their ultrastructural reorganization, which consists in the disappearance of the microtubular ring, followed by its restoration in the center of the cell, but of a smaller diameter, and also in the formation of new actin structures. As a result of this rearrangement, a granulomere and a hyalomere are formed. Platelets are called "floating muscles" because of their unique ability to contractile reactions, which are the basis for most of their functions in the body. Platelets are capable of incorporating and storing a number of substances - serotonin, proteins, fibrinogen, etc. Finally, they are secretory cells and, in the process of activation, are capable of releasing most of the stored active substances necessary for their functions. The activity of platelets in the bloodstream has a serious impact on the state of microcirculation. In the present study, it was found that women with miscarriage have consistently high platelet activity.

At the same time, the revealed changes in platelets are probably largely due to the constancy of the level of sensitivity of their receptors to exogenous influences (blood concentrations of aggregation inducers and von Willebrand factor - platelet adhesion cofactor, biogenic amines, etc.) with a constant number of receptors for them on surface of platelets. At the same time, the relatively stable level of active forms of platelets in the 1st group of pregnant women, in our opinion, is associated with the constancy of the reduced expression of fibrinogen receptors on their membrane. The results obtained are important because accurate knowledge of adaptive changes in the hemostasis system in case of miscarriage of early pregnancy allows more successful diagnosis of possible hemostasiological complications in

obstetrics, differentiation of physiological hypercoagulability and pathological activation of hemostasis, and targeted correction of the identified defects. Thus, the determination of the functional activity of platelets in women with miscarriage makes it possible to timely predict a violation of the course of pregnancy and provide early diagnosis of the threat of spontaneous miscarriage, which allows for timely prevention and correction aimed at prolonging pregnancy.

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