

CONDITION OF THE HEMOSTATIC SYSTEM IN PREGNANT WOMEN WITH THE THREAT OF PREMATURE BIRTH WHEN USING METABOLIC THERAPY

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Abstract

130 pregnant women were examined with the threat of premature birth in the gestational age of 28-34 weeks: I group – 67 pregnant women with threatened preterm labor who received standard complex therapy in combination with metabolic therapy in the form of 300 mg of omega-3 polyunsaturated fatty acids per day, group II - 63 pregnant women with threatened preterm labor who received only standard complex therapy. Analyzing the state of the hemostasis system, the following changes were revealed: an increase in the level of fibrinogen and prothrombin time, indicating a hypercoagulative process. Were observed a decrease in fibrinogen level, an increase in platelet count and activated partial thromboplastin time and a decrease in prothrombin time after treatment with the use of metabolic therapy, indicating the antithrombotic and antiaggregatory effects of metabolic therapy.

Key words: preterm labor, hemostasis system, metabolic therapy.

Introduction: The problem of preterm labor is extremely important, since birth of premature infants leads to high perinatal losses and increased morbidity due to severe neurological disorders such as infantile cerebral palsy, hearing and vision impairment, diseases of respiratory system and others [1-3]. The period of gestation is accompanied by

changes in hemostasis of a pregnant woman, which are necessary for the formation of the fetoplacental complex and reduction of blood loss during labor [4, 5, 6].

The objective: To evaluate the system of hemostasis in women with the threat of preterm labor in the gestation period of 28-34 weeks in a complex metabolic therapy usage.

Materials and Methods: 130 pregnant women with preterm labor were observed. Inclusion criteria: single-pregnancy with signs of premature delivery, gestational period of 28-34 weeks. Exclusion criteria: multiple pregnancy, pregnancy resulting from the usage of assisted reproductive technologies, severe extragenital pathology, premature rupture of the membranes, congenital malformations of the fetus. Pregnant women consisted of two observation groups: 67 pregnant women with preterm labor who received standard, complex basic therapy in combination with metabolic therapy in the form of 300 mg of omega-3 polyunsaturated fatty acids per day, were included in Group I, while Group II was 63 pregnant women with a threat of preterm labor who received only standard, comprehensive basic therapy. In order to prevent the respiratory distress syndrome of the fetus, pregnant women received dexamethasone intramuscularly in a total dose of 24 mg according to the Order of the Ministry of Health of Ukraine dated November 3, 2008 No. 624 "On approval of clinical protocols for obstetric and gynecological care", section "Preterm labor" [7]. A complete clinical and laboratory and instrumental examination was conducted. In the study of the state of the hemostasis system, the following parameters were determined: the number of fibrinogen, platelets, prothrombin index, prothrombin time, and activated partial thromboplastin time.

Results of the study and their discussion: The age of pregnant women ranged from 18 to 41 years and did not differ significantly in both groups. During the period of gestation, pregnant women also did not differ significantly - (31.13 ± 2.07) in group I and (30.63 ± 1.92) in group II. First-time pregnancy in group I was 35.8%, in group II - 30.2%, re-pregnant - 64.2% and 70.8% respectively. It was found that pregnant women of both groups had predominantly inflammatory diseases of the pelvic organs (34.3% in the 1st and 30.2% in the second group) and bacterial vaginosis (32.8% and 42.9% respectively). In the structure of extragenital pathology, diseases of the kidneys, cardiovascular system, dilatation in veins of the lower extremities and obesity were predominated. Tobacco smoking was observed in almost every third pregnant woman in both groups. It is known that nicotine leads not only to negative well-known effects, but also to the development of homocysteineemia, which is accompanied by hypercoagulation and hyperaggregation.

Evaluating the data of the hemostasis system before treatment, an increase in the level of fibrinogen in both groups ($4.24 + 0.32$) g / l in group I and ($4.45 + 0.24$) g / l in group II was found, which can be observed as hypercoagulation syndrome and the presence of an inflammatory center. The activated partial thromboplastin time (APTT) is used to evaluate the internal coagulation pathway and in the study groups this indicator was ($36.2 + 0.34$) sec in group I and ($35.3 + 0.42$) sec in group II, which means normal values during pregnancy. The determination of prothrombin time (PT) characterizes the external pathway of blood coagulation. In the I group, the inflammation was ($17.3 + 0.5$) sec, and in group II ($17.5 + 0.4$) sec, indicating an increased blood clotting, resulting in the formation of microthrombosis and hematomas that disrupt blood circulation in placenta. The level of platelets in the studied groups was $(240 + 12) \times 10^9 / l$ in group I and $(208 + 10) \times 10^9 / l$ in group II. The prothrombin index (PTI) was normal and did not differ significantly before and after the prescribed treatment.

Two weeks later, during which the pregnant women received treatment, they re-evaluated the condition of the hemostasis system. In pregnant women in group I receiving metabolic therapy, fibrinogen decreased to $(3.25 + 0.16)$ g / l, while in group II (pregnant women who received no metabolic therapy), this figure slightly increased - $(4.59 + 0.24)$ g / l. APTT increased to $(39.3 + 2.8)$ sec in group I and remained unchanged in group II ($35.4 + 3.1$) sec. Prothrombin time in group II remained unchanged ($17.4 + 0.5$) sec, while in pregnant women, Group I decreased to $13.9 + 0.3$ sec in the background of received treatment, indicating antithrombotic and anti-aggregation effects of omega-3 polyunsaturated fatty acids. Also marked increase in platelet count in women of group I $(254 + 12) \times 10^9 / l$, as opposed to group II $(203 + 12) \times 10^9 / l$.

Conclusions:

1. Changes in the system of hemostasis in pregnancy with threat of premature births are signs of hypercoagulation, manifested by the increase in fibrinogen levels, increased prothrombin time.

2. The application of complex metabolic therapy with the inclusion of omega-3 PUFAs helps to normalize the hemostatic blood potency of pregnant women with the threat of premature births, in contrast to standard therapy, which is manifested by an increase in platelet count, a decrease in fibrinogen levels, an increase in the activated partial thromboplastin time, and a decrease in prothrombin time, indicating a greater effectiveness of the proposed method.

3. Prospects for further research are to assess the state of the fetoplacental complex and newborns from mothers receiving complex metabolic therapy.

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