MARKERS OF ENDOTHELIAL DYSFUNCTION AND THE EARLY PREGNANCY FAILURE

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Introduction. Early pregnancy failure is one of the leading problems of obstetrics. Loss of the desired pregnancy is observed in 30% of cases [1]. A lot of recent publications indicate the great role of endothelial dysfunction and thrombophilia complications in reproductive losses [2].

Materials and methods. We have examined 153 pregnant women who were in inpatient treatment at the gynecological department of the MHCF [municipal health care facility] "CCMH №1" [City Clinical Maternity Hospital №1], and are also registered in the Well-Woman Clinic №1. Among them, 30 women were with uncomplicated pregnancy for 6-12 weeks (Group I), 60 women were with the threat of miscarriage (Group II), 34 women were with spontaneous abortion (Group III) and 29 women were with blighted ovum (Group IV).

Results obtained. On the basis of the results obtained in the course of clinical and laboratory-instrumental examinations of women with pathological course of pregnancy we have discovered that the concentration of endothelin-1 increased 3-5 times as much, nitric oxide decreased 1,7-2 times as much, and E-selectin –1,3-1,6 times as much in the blood, which is indicative of the development of endothelial dysfunction in women with pathology of pregnancy. Indicated decrease of nitric oxide and E-selectin concentrations are the main stimulators of cyclic guanosine monophosphate (cGMP) formation. An increased level of endothelin-1 results in reduction of cGMP amount, which increases calcium content in platelets and smooth muscles. Calcium ions are compulsory participants of all the phases of hemostasis and muscle contraction. Therefore, reduced level of nitric oxide can lead to vasoconstriction in the uterine vessels and activation of platelet aggregation resulting in miscarriage.

Women with the threat of miscarriage have a tendency to reduced amount of platelets and increased fibrinogen concentration, while during spontaneous miscarriage and undeveloped pregnancy appropriate reliable changes of the above parameters are registered – 1,5 and 2 times as much respectively. The indicator of activation of the clotting internal way is decrease in the amount of activated partial thromboplastin time: from (32,7±2,8) sec – with uncomplicated pregnancy – to (24,9±2,6) sec in patients with undeveloped pregnancy.

The following disorders in the hemostasis system are found with miscarriage...
in early pregnancy: heterogeneity of a circulating population of platelets (decrease of platelet content “of rest”, appearance of degenerative-changed cells and increase in the amount of highly activated cells).

**Conclusion.** Endothelial dysfunction, heterogeneity of the circulating population of platelets, variability of average morphometric parameters of platelets, and their hyperfunction are the major triggers of blood coagulation disorders and can lead to vasoconstriction in the uterine vessels and to the activation of platelet aggregation, and ultimately to the miscarriage. Therefore, the definition of endothelial dysfunction markers has prognostic value and will help to reduce the number of perinatal losses.

**References:**
