

Matrix metalloproteinase-12 is a predictor of pre-eclampsia?

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Context. Preeclampsia is the most difficult and important obstetrics problem, it ranks third in the structure of maternal mortality. Until now, there is no single idea of the mechanisms of development of this pathological process. The study of the concentration of matrix metalloproteinase-12 (MMP-12) in pregnancy will determine its possible role in the development of preeclampsia.

Objective. To evaluate the dynamics of the concentration of matrix metalloproteinase-12 in the blood serum during physiological pregnancy and the features of synthesis in pregnancy complicated by preeclampsia.

Methods. Determination of the concentration of matrix metalloproteinase-12 by enzyme immunoassay in I - 11-13, II - 22-24, III - 32-34 weeks gestation.

Patients. Study 101 pregnant with I trimester of gestation. In retrospect, women are divided into two groups: the main group is pregnant (n=18) with preeclampsia [moderate (n=11) and severe (n=6)], the comparison group is pregnant without pre-eclampsia (n=83).

Results. In the main group, an increase in the concentration of MMP-12 from the first trimester to II (p=0.0001) was established, followed by a slight decrease to the III trimester (p=0.1538). In the comparison group, the dynamics of MMP-12 concentration showed a distinctive tendency: a decrease in MMP-12 concentration from the first trimester to II (p=0.0001), followed by a slight increase to the III trimester (p=0.1478). There was a significant difference in MMP-12 concentration between groups in the first trimester of pregnancy (p=0.0001): in the main - median value - 0.93 pg/ml [0.76, 1.11], in the comparison group 0.34 pg/ml [0.32, 0.36]. Between the II and III trimester of pregnancy in both groups, the concentration of the biochemical factor is not significantly different (p=0.1457).

Conclusions. The results demonstrate the high biochemical activity of MMP-12 in the initial stages of placentation. Low secretion of the biochemical factor leads to a violation of the proteolytic activity of trophoblast cells, which contributes to the disruption of the structure and full functioning of the utero-placental complex, the development of pre-eclampsia. Thus, a low concentration of MMP-12 in the blood serum with a gestation period of 11-13 weeks is associated with a risk of developing pre-eclampsia.

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