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THE CONCENTRATIONS OF VEGF AND VEGFR-1 IN PREGNANCY COMPLICATED BY PRE-ECLAMPSIA.

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Context: Hypertensive disorders complicate 5-10% of pregnancies and along with postpartum haemorrhage and infections they form the deadly triad of pregnancy complications. According to WHO in developed countries pregnancy hypertension is responsible for 16% of mothers' deaths, what makes it the main cause of peripartum mortality of women.

Objectives: The assesment of the role of vascular – endothelial growth factor (VEGR-A) and vascular endothelial growth factor receptor (sVEGFR-1) in pregnancy complicated by pre-eclampsia and physiological gestation.

Methods: The concetrations of VEGF-A and sVEGFR-1 were measured with the use of immunoenzymatic assay.

Patients: The study included 34 patients with pre-eclampsia, diagnosed and 35 women in second and third trimester of uncomplicated pregnancy.

Results: In the group of patients with pre-eclampsia serum levels of VEGF-A were significantly lower - median 18,08 vs 22,7 pg/ml (p = 0,05) and levels of VEGFR-1 were significantly higher – median 3,58 vs 0,7 ng/ml (p<0,001) in comparison with healthy women. The concentrations of VEGF-A correlated negatively with level of sVEGFR-1 (R = -0,43). The concetration of sVEGFR-1 in pre-eclamptic women correlated positively to severity of symptoms of pre-eclampsia like systolic blood pressure (R = 0,76), diastolic blood presure (R = 0,74), proteinuria (R = 0,46), protein concentration in 24 hour urine collection (R= 0,42), concetrations of uric acid (R = 0,58) and urea (R = 0,65). Moreover, in patients with pre-eclampsia the negative correlation between concentration of VEGF-A and protein in 24 hour urine collection (R = - 0,51) and diastolic blood presure was observed. We also found the positive correlations between level of VEGF-A and pregnancy as well as neonatal weight.

Conclusions: Pregnancy complicated by pre-eclampsia was associated with increased concentrations of sVEGFR-1 and decreased concentrations of VEGF-A. The concentrations of sVEGF-R1 and VEGF-A were associated with severe clinical and biochemical symptoms of pre-eclampsia including: increase of systolic and diastolic blood pressure, increase of 24 h proteinuria as well as increased urea and uric acid concentrations. These results suggest direct influence of analized markers on endothelium function. These alterations may explain diffused damage of endothelium observed in pre-eclampsia. The increased sVEGFR-1 and decreased concentrations of VEGF-A correlated to worse perinatal outcome –

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shorter pregnancy lasting and lower neonatal weight. Our observations suggest the potential role of these markers in monitoring of pregnancy complicated with preeclampsia.