

## The role of Placental Growth Factor and Endoglin in the pathogenesis of pre-eclampsia

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**Context:** Pre-eclampsia complicates about 5-10% of pregnancies and there is one of the most important causes of maternal and fetal/neonatal morbidity and mortality.

**Objective:** The aim of the study was to assess the role of Placental Growth Factor PLGF and soluble form of Endoglin sENG in the group of patients with pre-eclampsia and healthy pregnant women.

**Methods and Patients:** The study included 33 patients with pre-eclampsia and 44 healthy women in I, II and III trimesters of uncomplicated pregnancy. The sera concentrations of PLGF and sENG were measured with the use of immune-enzymatic method.

**Results:** The concentrations of PLGF were significantly lower in the group of patients with pre-eclampsia when compared to healthy pregnant women (median: 3,3 pg/ml vs. 19,8 pg/ml,  $p < 0,001$ ). There were positive correlation between the concentration of PLGF and week of pregnancy when blood was drawn ( $R = 0,8$ ). Furthermore, in the group of patients with pre-eclampsia there were positive correlation between the concentrations of PLGF and the level of serum protein ( $R = 0,47$ ) and the negative correlation between PLGF and systolic pressure ( $R = -0,37$ ). Moreover, in the group of patients with pre-eclampsia the concentrations of sENG were significantly higher when compared to healthy pregnant women (median: 11,47 ng/ml vs. 6,13 ng/ml,  $p < 0,001$ ). In the group of patients with pre-eclampsia there were negative correlation between the concentrations of sENG and prothrombin time ( $R = -0,41$ ) as well as between the concentrations of sENG and the concentrations of PLGF ( $R = -0,21$ ). In the group of healthy pregnant women there was a negative correlation between the concentrations of sENG and the week of pregnancy when their blood was drawn ( $R = -0,41$ ).

**Conclusions:** In pregnancy complicated by pre-eclampsia the concentrations of PLGF were significantly lower and the concentrations of sENG were significantly higher when compared to normal pregnancy. It suggests the impaired process of the vascular formation in pre-eclamptic placenta. Moreover, the PLGF/sENG ratio was significantly higher in pre-eclampsia when compared to control group. The correlations between PLGF/sENG ratio and the indicators of disease severity were more profound when compared to correlations of single angiogenic factors and indicators of the disease. It suggests the potential usefulness of the PLGF/sENG ratio in the monitoring of the disease severity.

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