

## Placental kisspeptin and annexin V protein expression in preeclamptic pregnancies

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Preeclampsia (PE) is a multi-system pregnancy-specific disease, affecting 2 to 8% of all deliveries, with a trend towards an increase in recent years. PE afflicts 4–6% of pregnancies and is a leading cause of perinatal morbidity and mortality. Kisspeptins are peptide hormones one of their function is a regulation of trophoblast invasion. Also kisspeptin<sup>10</sup> is a potent vasoconstrictor and inhibitor of angiogenesis. Annexin-V, an anticoagulant phospholipid-binding protein, is normally present in syncytiotrophoblasts lining the placental villi, where it may play a role in the maintenance of intervillous blood fluidity.

The aim of this study was to examine protein expression of vasoactive proteins across the maternal-fetal tissues of both healthy and preeclamptic pregnancies.

**Methods.** Group 1: 30 preeclamptic pregnant woman aged 22-39 years ( $30,75 \pm 4.86$ ) who undergo cesarian section. Group 2 (control): 20 normotensive pregnant women with singleton pregnancy aged 22-35 years ( $30,66 \pm 4,08$ ). For Immunohistochemical reaction were used antibodies to Kiss1 (1:150, Abcam), Kiss1R (1:350, Abcam), Annexin V (1:200, Dako) and CD34 (1:100, Dako). For double-stain the pair of Alexa Fluor 488 and Alexa Fluor 647 (1:1000, Abcam) were taken as secondary antibodies.

**Results.** No significant difference was noticed between preeclampsia and control group regarding to maternal age and gestational age at delivery. We use CD34 for mark the placenta vessels. The detectable kisspeptin immunoreactivity was localized to the villous syncytiotrophoblast and cytotrophoblast cell layers of placental villi. Morphometric analysis revealed that average area of kisspeptin expression was 3 times higher in preeclamptic placentas compared to control group. Annexin V was found in syncytiotrophoblast of the villis. Expression of Annexin V protein in the placental tissues were significantly different between healthy controls and preeclampsia, being the higher in normal pregnancy group and lower in preeclampsia group ( $p < 0,05$ )

**Conclusions.** Kisspeptin could play a crucial role in development of preeclampsia because limited trophoblast invasion affects subsequent placental development and result in inadequate transformation of the spiral arteries. The altered expression of vasoactive peptides by abnormal placenta in preeclampsia condition likely cause the maternal disease and may be useful diagnostic tools.

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