The Influence of Fetal Sex on the System of Angiogenic Factors and Cytokines in Women with Physiological and Complicated Pregnancy in Second and Third Trimesters

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Significant violations of angiogenesis, which are accompanied by changes in expression of endothelial growth factors and interleukins, are observed in placental insufficiency. However, peculiarities of its expression depending on the sex of the fetus are not completely understood. The objective of this study was to explore the peculiarities of angiogenic factors and cytokines system in women with physiological pregnancy and in case of placental insufficiency in dependence on fetal sex. We studied 2 groups of women: 390 women with physiological pregnancies (203 women with male fetuses and 187 with female fetuses) and 345 women with placental insufficiency (176 women with male and 169 with female fetuses). The levels of VEGF-A, EGF, PI GF, ET-1, TNF-?, IL-1, IL-6, IL-10, IL-12 were determined in blood serum with the help of ELISA method in II and III trimesters of gestation. We detected a higher expression of VEGF-A (1.5 times), ET-1 (2.5 times), EGF (1.6 times) in physiological pregnancy in women with female fetuses than in women with male fetuses. Higher levels of IL-1? (1.5 times), IL-6 (1.8 times) and IL-10 (5.7 times) were revealed in mothers of girls in pregnancies with placental insufficiency. Our study showed that changes in expression of angiogenic factors and cytokines contribute to the development of oligohydroamnios (11.4%), polyhydroamnios (9%), preeclampsia (6.8%) and unfavorable indices of fetal biophysical profile in pregnant women with male fetuses. Identified differences in the expression of angiogenic factors and cytokines suggest the existence of a special "request" from the utero-placental-fetal complex defined by the sex of the fetus. High activity of angiogenic factors and cytokine system in women with female fetus both in physiological and complicated pregnancies indicates a higher adaptability of its "mother-placenta-fetus" system.