BSTR-30

IL-1β Expression in Chorionic Tissue and Decidua of Women with Pregnancy Loss at the First Trimester

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Background & Hypothesis:
The pathophysiology of pregnancy loss is complicated and poorly understood. Immunity, angiogenesis, and apoptosis-related genes are involved in pathogenesis. The imbalance of cytokines and growth factors can negatively affect pregnancy. To further investigate the role of cytokines in spontaneous abortion, we measured the *IL-1β* gene expression in chorionic tissue and deciduas.

Methods:
Samples of tissues were taken after surgical termination by curettage of normally progressing pregnancies and spontaneous abortion between 5-9 weeks of gestation. Villous samples from the control group were obtained from women undergoing elective abortion for social reasons. Total RNA was extracted. Estimation of expression level of analysed gene was performed by RT-qPCR method.

Results:
The expression of *IL-1β* differs for chorionic and decidual tissues under the condition of normal gestation. Compared with chorionic tissue, the expression of *IL-1β* was statistically increased in decidual tissue under the condition of normally progressing pregnancy ($P = 0.001$). *IL-1β* expression in samples of both tissues in spontaneous abortion is equal. Compared with the control group, the expression of *IL-1β* was increased in decidual (4.4 fold; $P = 0.024$) and chorionic (22.6 fold; $P = 0.016$) tissues in cases of spontaneous abortion.

Discussion & Conclusion:
The high level of *IL-1β* expression in chorionic and endometrial tissues may predispose to recurrent miscarriage through a perturbed maternal immune response, effects on decidual tissue remodelling and angiogenesis, or dysregulated trophoblast differentiation and invasion. This study was carried on the equipment of Center for collective use "High Technology" and supported by the federal assignment №6.98.2014/К from Russian Ministry of Science and Education.