

Intracellular pattern-recognition receptors, recognizing viruses, in pathogenesis of missed and spontaneous abortions.

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Context. Viral infection can play an important role in pathogenesis of missed abortions and spontaneous miscarriages (Ostrovskaya O.V. et al., 2013). Main receptors of innate immunity, recognizing viruses, are Toll-like receptors (TLR) 3, 7, 8 and 9, RIG-I, IFI-16, AIM2. But their role in pathogenesis of early miscarriages remains unknown.

Objective: to estimate the role of intracellular pattern-recognition receptors, recognizing viruses, in pathogenesis of missed and spontaneous abortions.

Methods. mRNA expression of TLR 3, TLR7, TLR8, TLR9, RIG-I, IFI-16, AIM2 was detected by quantitative polymerase chain reaction. Peptidyl prolyl isomerase ? (PPIA) and beta-actin were used as housekeeping genes. Expression of mRNA was counted in relative units as delta-delta cq. Statistical analysis was performed by Mann-Whitney test using Statistica 13.2 (Statsoft, USA).

Patients. 34 patients with missed abortions, 34 patients with spontaneous abortions and 57 patients, admitted for medical abortion, as control group were examined. Gestational age of pregnancy termination in all cases was 6-10 weeks. Patients with severe extragenital diseases, antiphospholipid syndrome and endocrine disorders were excluded from the research.

Interventions. Endometrial tissue was obtained by uterine abrasion.

Results. In case of missed abortion 1,5-fold increase of TLR3 mRNA expression was observed compared with control group ($p<0,05$). At the same time 2,9-fold decrease of TLR8 was discovered ($p<0,01$). 7-fold increased mRNA expression of AIM-2 was observed in patients with missed abortion compared with control group ($p<0,05$). It was accompanied with significant increase of its pathway proteins – caspase-1 and IL-1beta. TLR3 recognizes double-stranded RNA of viruses, TLR8 – single-stranded RNA of viruses. AIM2 recognizes DNA of viruses and bacteria. No significant changes of expression of TLR7, TLR9, RIG-I and IFI116 in endometrium was observed in patients with missed abortions.

In endometrium of patients with spontaneous abortions there were no differences in expression of TLR3, TLR7, TLR8, TLR9, AIM-2, IFI16, RIG-I compared with the control group.

Conclusions. Thus, increased levels of TLR3 and decrease TLR8, involved in antiviral immune response, and increased level of AIM2, which lead to induction of inflammation and apoptosis, can influence to pathogenesis of missed abortions.

Supported by Grant of President of Russian Federation MD-2326.2017.7.