P-IS-67 Cultured human endometrial epithelial cells produce thymus and activation-regulated chemokine upon stimulation with interleukin-4 and interleukin-13

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[Objective] Human endometrial epithelial cells (EEC) and stromal cells (ESC) produce a variety of chemokines, which have been suggested to be important in bacterial infection, menstruation, implantation, and in the maintenance of early pregnancy. Present study is to evaluate the effects of T-helper (Th) 1 and Th2 cytokines on the production of thymus and activation-regulated chemokine (TARC) by cultured EEC and ESC. [Methods] The production of TARC by cultured EEC and ESC stimulated with recombinant interleukin (IL) -2, IL-4, IL-5, IL-10, IL-12, IL-13, interferon-γ, and tumor necrosis factor-β; was evaluated by an enzyme-linked immunosorbent assay. [Results] Small amounts of TARC were detected in the culture medium of non-stimulated EEC. The increase in levels of TARC in the culture media of EEC paralleled the addition of increasing amounts of IL-4 and IL-13. Other cytokines, however, did not affect the production of TARC by EEC. Production of TARC by ESC was not detected under either non-stimulated or cytokine-stimulated conditions. [Conclusion] These results suggest that IL-4 and IL-13 secreted from the embryo during the implantation period may selectively upregulate the production of TARC by EEC. The controlled production of TARC in the endometrium may contribute to the modulation of the immune reaction by regulating of Th2 lymphocyte trafficking and functions.

P-IS-68 Expression of cytokines in the peri-implantation endometrium of excessive ovarian responders

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Objective: Impaired implantation in assisted reproduction cycles with high serum oestradiol (E2) concentrations may be related to abnormal endometrial development and functions. This study compared expression of both type 1 and type 2 cytokines between natural and stimulated cycles of infertile patients.
Methods: Patients received a standard regimen of ovarian stimulation. Uterine flushings and endometrial biopsies were performed 7 days after the LH surge in natural cycles or the HCG injection in stimulated cycles. Natural cycles were classified as Group A whereas stimulated cycles with serum E2>20000 pmol/L (moderate responders) and serum E2>20000 pmol/L (excessive responders) were classified as Groups B and C respectively.
Results: Type 1 cytokines: In the endometrial biopsies, both glandular and stromal interleukin-2 (IL-2) expression was significantly higher in Group C than those in Group A and Group B. IL-2 expression were similar between Group A and Group B. There were no significant differences in glandular and stromal IFN-γ expression among the three groups. No significant differences in the percentage of undetectable IL-2 and IL-2 concentration were noted in the uterine flushings among the three groups. Type 2 cytokines: In the endometrial biopsies, IL-11 in the stromal compartment and IL-6 in the glandular epithelium were significantly lower in Group C than those in Groups A and B. Group C had significantly higher percentage of women with undetectable IL-11 and lower IL-11 concentration in the uterine flushings than that of Group A. No differences in expression of LIF and IL-4 in endometrial biopsies and IL-6 concentration in uterine flushings were noted among the three groups.
Conclusion: Increased expression of IL-2 and reduced expression of IL-11 and IL-6 were demonstrated in the peri-implantation endometrium of excessive responders. This imbalance between over-expressed type 1 and under-expressed type 2 cytokines may lead to an adverse endometrial environment and thus lower pregnancy rate of excessive responders.