**Abstract**

**Objective:** To observe the levels of leukemia inhibitory factor (LIF), interleukin-6 (IL-6) and vascular endothelial growth factor (VEGF) in blood, peritoneal fluid, ectopic endometrial tissue, and ectopic endometrial stromal cells of patients with endometriosis, and to compare expression of IL-6, LIF and VEGF expression between endometriotic and non-endometriotic patients underwent laparoscopic surgery.

**Methods:** Thirty-one patients who underwent laparoscopic surgery for endometriosis in our hospital from January 2018 to January 2020 were included in the observation group, and 32 patients who underwent laparoscopic surgery for uterine fibroids, ovarian serous cystadenoma, and ovarian teratomas, were included in the control group. The levels of LIF, IL-6 and VEGF in the blood and peritoneal fluid of the two groups of patients were detected. The levels of LIF, IL-6 and VEGF in ectopic endometrial tissue and self-paired eutopic endometrial tissue, ectopic endometrial stromal cells and self-paired eutopic endometrial stromal cells of patients in the observation group were detected. After treating the primary cultured ectopic endometrial stromal cells with LIF and IL-6 alone or in combination, the changes of VEGF mRNA of ectopic endometrial stromal cells and the VEGF levels in the supernatant were observed.

**Results:** The levels of LIF, IL-6 and VEGF in the blood and peritoneal fluid of the observation group were all higher than those of the control group (P < 0.05), and the levels of LIF, IL-6 and VEGF in the peritoneal fluid of the observation group were significantly higher than those in the blood (P < 0.05). In the observation group, the expression levels of LIF-mRNA and IL-6 mRNA in the ectopic endometrial tissue were higher than those in the self-paired eutopic endometrial tissues (P < 0.05), while the expression level of VEGF mRNA in the ectopic endometrial tissues was lower than that in the self-paired eutopic endometrial tissues (P < 0.05). Besides, the mRNA expression levels of LIF, IL-6 and VEGF in ectopic endometrial stromal cells of the observation group were all higher than those in the self-paired eutopic endometrial stromal cells (P < 0.05). After stimulating ectopic endometrial stromal cells with LIF, IL-6 and LIF + IL-6, respectively, the VEGF levels in the supernatant were all significantly higher than that in the blank control group (P < 0.05).

**Conclusion:** The LIF, IL-6 and VEGF levels in blood and peritoneal fluid were increased in patients with endometriosis, and increased LIF and IL-6 in ectopic endometriosis stromal cells can play a synergistic role in increasing the VEGF levels, which may be involved in the occurrence and development of endometriosis.