The Research about the Effect and Mechanism of GuiXiong Xiaoyi Wan, a Chinese medicine formula on Endometriosis

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Introduction:
GuiXiong Xiaoyi Wan (GXXYW), a Chinese medicine formula for endometriosis, is prescribed by practitioners based on their clinical experience. With its adequate medicine source, good clinical efficacy, little side effects, GXXYW seems to be a promising therapeutic method of endometriosis. In our study, we examined the influence of GXXYW on rat endometriosis model and human endometrial stromal cells (ESCs), exploring the related mechanism involved.

Materials and methods:
Induced endometriosis in 30 rats and randomly divided rats into 3 groups. The rats in treatment group were given GXXYW 4g/200g/d and 8g/200g/d and the rats in control group were given saline for 30 days. The lesion volumes were calculated, then cell proliferation, apoptosis, the level of IL-2, IL-6 in peritoneal fluid and the level of apoptosis-related protein Bax, Bcl-2, caspase-3 in the lesions were separately tested by Immunocytochemistry, TUNEL, Elisa and RT-PCR. We obtained 6 ectopic endometrium samples from women with ovarian endometriosis. Cells was cultured and separately incubated in 10%, 20%, 30% GXXYW-containing rat serum and non-GXXYW-containing serum for 24, 48 and 72h. CCK-8, TUNEL, Flow cytometry and Western blot was performed to assess cell proliferation, apoptosis, cell cycle and the level of Bax, Bcl-2, PCNA and Cyclin D1.

Results:
In animal experiment, the lesion volumes were smaller, proliferation was significantly suppressed, apoptosis was more obvious and the mRNA expression of Bax, Bcl-2, caspase-3 was decreased in the lesions of the treatment group. GXXYW-treated rats also demonstrated a significant increase in IL-2 and a significant decrease in IL-6. In cell experiment, GXXYW-containing serum induced a dose-dependent decrease in the viability of ESCs and a increase in ESCs apoptosis. The number of cells in the G0/G1 phase increased following treatment, while the number of cells in the S and G2/M phases decreased. GXXYW-treated cells also displayed an increased bax/bcl-2 ratio and decreased expression of PCNA and CyclinD1.

Conclusion:
These results suggest that GXXYW may be effective in the suppression of the growth of endometriosis, possibly through the inhibition of cell proliferation, the induction of apoptosis of ESCs, causing arrest in the G0/G1 phase and the regulation of the immune system.

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