

Curcumin inhibits endometriosis endometrial cells by reducing estradiol production.

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Abstract

BACKGROUND:

Endometriosis is a complex estrogen-dependent disease that is defined as the presence of endometrial gland and stroma outside the uterine cavity. Although the exact mechanism for the development of endometriosis remains unclear, there is a large body of research data and circumstantial evidence that suggests a crucial role of estrogen in the establishment and maintenance of this disease.

OBJECTIVE:

This study is an attempt to assess the effect of curcumin on inhibiting endometriosis endometrial cells and to investigate whether such an effect is mediated by reducing estradiol production.

MATERIALS AND METHODS:

Endometriotic stromal cells, normal endometrial stromal cells, endometriotic epithelial cells and normal endometrial epithelial cells were isolated and cultured. E2 value of cells and the effect of curcumin on cell proliferation were evaluated. Finally, effect of curcumin on E2 assay was detected.

RESULTS:

Electrochemiluminescence immunoassay results showed that E2 value of endometriotic epithelial cells was higher than the endometriotic stromal cells ($p=0.037$), while the expression of E2 in normal endometrial stromal and epithelial cells was extremely low. WST-8 result showed, compared with endometrial stromal cells, ectopic endometriotic stromal cells had a higher growth rate. After intervene with curcumin ($10\mu\text{mol/L}$, $30\mu\text{mol/L}$ and $50\mu\text{mol/L}$) for 0-96h, the number of endometriotic stromal cells was reduced and cells growth slowed, compared with $0\mu\text{mol/L}$ group. Compared with $0\mu\text{mol/L}$ group, E2 level was lower after treatment with curcumin, especially in $30\mu\text{mol/L}$ and $50\mu\text{mol/L}$ group.

CONCLUSION:

In summary, in this study we found that E2 is important in ectopic endometrium, and epithelial cell is in dominant position with E2 secretion. Curcumin was able to suppress the proliferation of endometrial cells by reducing the E2 value.