In vivo effects of curcumin and deferoxamine in experimental endometriosis.

Kizilay G¹, Uz YH¹, Seren G², Ulucam E³, Yilmaz A³, Cukur Z⁴, Kayisli UA⁵.

Abstract

BACKGROUND:
Endometriosis is one of the most common chronic gynecological diseases.

OBJECTIVES:
The aim of the study was to examine the effects of curcumin and/or deferoxamine on cell proliferation in a rat model of endometriosis.

MATERIAL AND METHODS:
Thirty female 12-week-old albino Wistar rats, weighing 200-250 g, were used in this study. All the rats underwent ovariectomy and 0.1-mg β-estradiol 17-valerate pellets were placed intraperitoneally. An experimental model of endometriosis was created in all the animals. To create the experimental model, an approximately 1-cm long section of the uterus was taken, primarily from the right horn of the uterus. Autologous fragments were then placed between the peritoneum and muscle. The animals were divided into 3 groups: Group A, treated only with the vehicle used for curcumin and deferoxamine; group B, treated with curcumin (100 mg/kg body weight); and group C, treated with deferoxamine + curcumin (100 mg/kg body weight). After biopsy samples were obtained, the sections were stained with hematoxylin and eosin. Immunostaining for cytokeratin-7 and proliferating cell nuclear antigen (PCNA) was performed. Blood iron levels were measured using a Perkin Elmer AAnalyst 800 Atomic Absorption Spectrophotometer.

RESULTS:
The endometrial implant size increased in Group A, but treatment with curcumin (p = 0.01) and deferoxamine + curcumin (p = 0.007) reduced the implant size. In ectopic endometrial epithelial cells, there were significant decreases in PCNA immunoreactivity between groups A and B (p = 0.044) and between groups A and C (p = 0.033).

CONCLUSIONS:
Treatment with curcumin alone and/or in combination with deferoxamine contributed to a reduction in implant size and cell proliferation in a rat endometriosis model. Iron-chelating agents may act in the same manner when used in women with endometriosis; however, further studies from different perspectives are still needed.