

Effect of dietary supplementation with eicosapentaenoic acid on surgically induced endometriosis in the rabbit.

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Abstract

The association between endometriosis and infertility is well known. Recently some investigators have speculated that endometriosis may cause an inflammatory response and prevention of normal fertilization, embryo development or implantation. Eicosapentaenoic acid (EPA) inhibits production of cyclooxygenase metabolites of arachidonic acid (AA). The effect of oral administration of pure EPA on endometriosis was studied. The author supplemented the diet of Japanese white rabbits with EPA (100 mg/kg/day, experimental group) or with a 5% gum arabic solution (control). Endometriosis was surgically induced by a previously described experimental technique. Peritoneal fluid PGE₂, PGF₂-alpha and IL-1-beta concentrations in the experimental rabbits and controls were measured before and after induction of endometriosis by laparotomy. Following the treatment, EPA levels in plasma and peritoneal fluid increased significantly. However, no differences were seen in AA levels. Peritoneal fluid PGE₂ and IL-1-beta concentrations increased significantly after induction of endometriosis in the control group. In contrast, they were not significantly changed after endometrial implantation in the experimental group. Peritoneal fluid PGF₂-alpha concentrations were lower in the EPA group than in the controls, but there were no significant differences. The findings of the present study suggest the beneficial effects of EPA in the therapy of infertile patients with endometriosis.