Fertil Steril. 2001 Oct;76(4):717-22.

High omega-3:omega-6 fatty acid ratios in culture medium reduce endometrial-cell survival in combined endometrial gland and stromal cell cultures from women with and without endometriosis.

Gazvani MR[1], Smith L, Haggarty P, Fowler PA, Templeton A.

Abstract

OBJECTIVE:
To study the effects of omega-3 and omega-6 polyunsaturated fatty acid (PUFA) on in vitro proliferation of endometrial cells and their production of the cytokine interleukin-8 (IL-8).

DESIGN:
In vitro study.

SETTING:
Obstetrics and gynecology department, University of Aberdeen.

PATIENT(S):
Women attending an infertility clinic.

INTERVENTION(S):
In vitro cell cultures using culture mediums supplemented with normal and high ratios of omega-3 PUFA and omega-6 PUFA.

MAIN OUTCOME MEASURE(S):
In vitro survival and production of IL-8 by dispersed endometrial cells.

RESULT(S):
In vitro survival of endometrial cells from women with and without endometriosiswas significantly reduced in the presence of high omega-3:omega-6 PUFA ratios compared with cells incubated in the absence of fatty acids, in balanced omega-3:omega-6 PUFA ratios, and in high omega-6:omega-3 PUFA ratios. Endometrial cells from women with endometriosissecreted higher concentrations of IL-8, especially in the presence of high omega-3:omega-6 PUFA ratios.

CONCLUSION(S):
omega-3 PUFA may have a suppressive effect on the in vitro survival of endometrial cells and omega-3 PUFA be useful in the management of endometriosis by reducing the inflammatory response and modulating cytokine function.