

Evaluation of the relationship between endometriosis and omega-3 and omega-6 polyunsaturated fatty acids.

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Abstract

BACKGROUND:

Endometriosis is a common chronic inflammation causing major problems including infertility. The role of omega-3 and omega-6 fatty acids as their potential anti-inflammatory effects in endometriosis needs to be further explored. The objective of this study was to compare serum phospholipid fatty acid profile in endometriosis patients with controls, and to explore the correlation of this profile with the severity of the disease.

METHODS:

Sixty-four endometriosis patients and 74 control women, in reproductive age, participated in this study. Among the endometriosis patients, 19 cases were in stage I, 27 cases in stage II, 8 cases in stage III, and 10 cases in stage IV. Each patient underwent laparoscopy. Before surgery, 5 ml of blood was obtained. After extraction of the total lipids, serum total phospholipid fraction was isolated by thin layer chromatography. Fatty acid composition of the phospholipid fraction was determined by gas chromatography and the resulted profile was compared in endometriosis patients and controls. The profile was also compared in the endometriosis group based on the severity of disease.

RESULTS:

Stearic acid was significantly lower in the endometriosis group as compared to controls ($P=0.030$). No other fatty acid compositions were significantly different between patients and controls. Serum ratio of eicosapentaenoic acid (EPA) to arachidonic acid (AA) was in reasonable correlation with the severity of endometriosis ($r = 0.34$, $P = 0.006$).

CONCLUSION:

According to these findings, levels of fatty acids in serum total phospholipids seem not to be a marker for endometriosis, but the EPA to AA ratio was a relevant factor indicating severity of illness.