

High ω -3: ω -6 fatty acids ratio increases fatty acid binding protein 4 and extracellular secretory phospholipase A2IIa in human ectopic endometrial cells.

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Abstract

BACKGROUND:

Endometriosis, a common chronic inflammatory disorder, is defined by the atypical growth of endometrium- like tissue outside of the uterus. Secretory phospholipase A2 group IIa (sPLA2-IIa) and fatty acid binding protein4 (FABP4) play several important roles in the inflammatory diseases.

OBJECTIVE:

Due to reported potential anti-inflammatory effects of ω -3 and ω -6 fatty acids, the purpose of the present study was to investigate the effects of ω -3 and ω -6 polyunsaturated fatty acids (PUFAs) on fatty acid binding protein 4 and extracellular secretory phospholipase A2IIa in cultured endometrial cells.

MATERIALS AND METHODS:

Ectopic and eutopic endometrial tissues obtained from 15 women were snap frozen. After thawing and tissue digestion, primary mixed stromal and endometrial epithelial cell culture was performed for 8 days in culture mediums supplemented with normal and high ratios of ω -3 and ω -6 PUFA. sPLA2-IIa in the culture medium and FABP4 level was determined using enzyme immuno assay (EIA) technique.

RESULTS:

Within ectopic endometrial cells group, the level of cellular FABP4 and extracellular sPLA2-IIa were remarkably increased under high ω -3 PUFA exposure compared with control condition ($p=0.014$ and $p=0.04$ respectively).

CONCLUSION:

ω -3 PUFAs may increase the level of cellular FABP4 and extracellular sPLA2-IIa in ectopic endometrial cells, since sPLA2-IIa and FABP4 may affect endometriosis via several mechanisms, more relevant studies are encouraged to know the potential effect of increased cellular FABP4 and extracellular sPLA2-IIa on endometriosis.