Reference:

Serum Polyunsaturated Fatty Acids and Endometriosis


Dept. of Obstetrics and Gynecology, Washington Univ. School of Medicine, St. Louis, MO, USA

Summary:

Endometriosis is commonly found amongst women of reproductive age and is associated with infertility, significant pain, and other symptoms. Omega-3 fatty acids have exhibited the potential to suppress endometriosis lesions in animal models while there is some evidence from the Nurses' Health Study that higher intakes of omega-3 fatty acids are associated with a lowered risk of endometriosis (Missmer, S. et al., Human Reprod., 25: 1528-1535 (2010). Since long-chain omega-3 fatty acid levels as EPA/DHA in the circulating blood reflect dietary intakes, the present research study investigated their levels in relation to the confirmed diagnosis of endometriosis. A total of 205 women (average age of 33 years) were studied. Of these, 24 were classified as having endometriosis (as confirmed surgically) while the remainder (181 ‘control’ women) had an infertility diagnosis which was due to various other factors but not to endometriosis. Blood samples were taken from the participants and the fatty acid compositions (including omega-3, EPA/DHA, others) of the serum lipid was determined by liquid chromatography coupled to mass spectroscopy.

The results showed no significant differences in the fatty acid levels of total polyunsaturated fatty acids (omega-6 plus omega-3 combined), total omega-3 (sum of short- plus long-chain fatty acids), DHA omega-3, or total omega-6 between the two groups. However, the levels of EPA omega-3 (eicosapentaenoic acid) were significantly lower (by 20% overall) in those women with endometriosis relative to controls. Furthermore, women having the highest levels of circulating EPA (top 25% of all) were 82% less likely to have a diagnosis of endometriosis as compared to women with the lowest EPA levels (bottom 25%). The authors point out that the most efficient way for increasing circulating levels of EPA is through its direct consumption.
They recommended future clinical studies which employ food plus supplemental sources of EPA in women with endometriosis.

**Dr. Holub's Comments:**

Since inflammation and associated processes are known to play a key role in endometriosis, the known ability of EPA to suppress the generation of pro-inflammatory compounds (e.g., 4-series leukotrienes, cytokines, others) may underlie its apparent beneficial effect. Also, EPA can generate bioactive products (lipoxins, resolvins) which support the resolution of inflammatory processes. It is noted that, based on their novel research findings using EPA in an animal model, Dr. S. Netsu and colleagues published their paper seven years ago entitled ‘Oral Eicosapentaenoic Acid Supplementation as Possible Therapy for Endometriosis’ (Fertil. Steril., 90: 1496-1502 (2008)).