Reference:

Fish Oil (n-3 Fatty Acids) in Drug Resistant Epilepsy: a Randomized Placebo-controlled Crossover Study


Departments of Neurology, Cardiology and Neurobiology, UCLA School of Medicine, Los Angeles, Calif., USA

Summary:

Drug-resistant epilepsy is regarded as a serious disease – characterized by the failed response of a patient with epilepsy to two or more anti-epileptic drugs given at therapeutic doses. Fish oil containing EPA/DHA omega-3 fatty acids has been found to favourably modify seizures in selected animal models at some doses but not others. Varied clinical findings have been reported in isolated human patient trials. The present study was designed to evaluate the potential benefit of EPA/DHA supplementation in drug-resistant patients with epilepsy using a low and high dose of fish oil.

This clinical trial on 24 patients (ages 18-70) employed a ‘cross-over’ design wherein the supplemented patients received either placebo capsules (‘controls’ lacking EPA/DHA), or low-dose fish oil (three capsules daily providing a total of 1080 mgs EPA/DHA consisting of 648 mg EPA plus 432 mg DHA), or high-dose fish oil (providing 2160 mg EPA/DHA daily). One of the assigned supplements was given for a duration of 10 weeks followed by a 6-week ‘washout’ period with re-assignment to one of the other supplement regimens with repeat of the latter until each patient had received all three of the supplements. The primary ‘end point’ measure was the total seizure frequency (as calculated in seizures per day and per month).

The low-dose fish oil supplementation (1080 mg EPA/DHA daily) assignment resulted in a
significantly lower seizure frequency (by 34 %) as compared to the ‘placebo’ controls. Whereas a seizure frequency averaging 18 episodes/month was found in the latter group, this was only 12 episodes/month in the former group. The researchers also found that 25 % of the subjects on the low-dose fish oil experienced a 50 % reduction in seizures. Interestingly, seizure frequency with the high-dose fish oil was not significantly different from the control supplement. The fish oil was well tolerated with no serious adverse effects being encountered. The low-dose fish oil was also associated with a significant but mild lowering of blood pressure. The authors concluded that ‘low-dose fish oil is a safe and low-cost intervention that may reduce seizures and improve cardiovascular health in people with epilepsy’.

Dr. Holub’s Comments :

These study results should spark future clinical trials which evaluate the potential clinical benefits of different doses of supplementary EPA/DHA in patients with drug-resistant epilepsy. The concomitant albeit minor lowering of blood pressure as reported is of added interest since the risk of adverse cardiovascular outcomes is known to be significantly higher in those with epilepsy (Janszky et al., Brain , 132: 2798-2804 (2009)). The failure of the high-dose fish oil to exert an apparent benefit was suggested by the authors to possibly be due to an excessive lowering of the circulating levels of the long-chain omega-6 fatty acid as arachidonic acid (which would not be the case with the low-dose fish oil). However, much more research is needed to better account for any differences between low-and high-dose fish oil. Finally, the low-dose fish oil used in this study (1080 mg EPA/DHA daily) is much higher than current dietary intakes in North America (approx. 110 – 150 mg/day on average) but in the range of many people living in Japan.