Fish oils and bleeding risk

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THE BODY OF EVIDENCE AVAILABLE REGARDING OMEGA-3 FATTY ACID SUPPLEMENTATION DEMONSTRATES THE BENEFITS FOR CARDIOPROTECTION FAR OUTWEIGH THE RISK OF BLEEDING.

Over the past 30 years, the cardiovascular effects of marine omega-3 essential fatty acids (EFAs) have been the subject of increasing investigation. In the late 1970s, epidemiological studies revealed that Greenland Inuits had substantially reduced rates of acute myocardial infarction and lowered mortality from coronary heart disease, compared with Westerners.1 These observations have generated more than 4,500 studies to explore this benefit and other effects of EFAs on human metabolism and health.2 While much research has focused on the role of EFAs in cardiovascular disease, research is accumulating to suggest roles in other conditions such as Alzheimer’s dementia, mood disorders, ADHD, depression and various autoimmune diseases.3,7

Omega-3 EFAs are essential substances that cannot be endogenously produced by mammals and so must be ingested through the diet. They are polyunsaturated fatty acids (PUFAs) in which the first double bond counting from the omega carbon is at position 3—hence, the name omega-3 EFAs. There are several major EFAs such as alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Fish and fish oils contain preformed EPA and DHA, whereas ALA may be found in certain seed oils.

To date, meta-analyses of primary and secondary coronary heart disease prevention trials have shown that EFAs can significantly reduce all-cause mortality, sudden death and coronary heart disease death.8 The cardioprotective effects have been established in animal and human experimental studies, in epidemiological observations and in randomised controlled trials.

CARDIOPROTECTIVE EFFECTS

One of the largest studies investigating fish oils for secondary prevention was the GISSI Prevenzione study, a multi-centre trial conducted in Italy and published in The Lancet in 1999. The GISSI trial involved more than 11,000 subjects who had experienced a myocardial infarction within the previous three months. The trial demonstrated that treatment with supplemental EFAs reduced total deaths by 20%, cardiovascular deaths by 30% and risk of sudden death by 45%.1

In 2002, analysis of the time course of the appearance of the effects of n-3 PUFAs showed an early and highly significant reduction in mortality after only three months’ treatment.3,9 The reduction in risk of sudden cardiac death by n-3 PUFAs was significant at four months, and was highly statistically significant at 42 months. The reduction of the other causes of death became significant somewhat later than that of sudden death: cardiac death at six months, coronary death and cardiovascular death, both at eight months.

In 2007, further analysis of these results revealed no evidence that concomitant disease states, habits, or interventions altered the therapeutic benefit of n-3 PUFA consumption in survivors of recent myocardial infarction.10 Since publication of the landmark GISSI Prevenzione trial, another large trial has been published, also showing substantial benefits for EFAs. The Japan EPA Lipid Interventional Study (JELIS) trial of 18,645 Japanese patients in primary and secondary prevention showed a 19% risk reduction in major coronary events when EFAs (1.8gm/d) were added to standard therapy (either 5mg/d simvastatin or 10mg pravastatin).11

While many secondary coronary heart disease prevention trials require months of treatment before the benefits of EFA supplementation are detected, a clinical study with cardiothoracic surgical patients suggests acute benefits within weeks. Calò et al conducted a randomised, placebo-controlled study, which found that patients taking 2g/day of fish oils for at least five days prior to coronary artery bypass grafting until discharge, had a significantly reduced incidence of post-operative atrial fibrillation (AF).12 Specifically, 15.2% of patients...