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Eicosapentaenoic acid vs. docosahexaenoic acid for the prevention of cardiovascular disease

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Abstract

Purpose of review: Populations with greater fatty fish intake have lower risk of coronary heart disease. However, trials testing omega-3 fatty acids (FA) on cardiovascular outcomes have yielded inconsistent results. In this review, we summarize the major cardiovascular trials examining omega-3 FA supplementation, and compare differences with eicosapentaenoic acid (EPA) alone vs. docosahexaenoic acid (DHA) combined with EPA.

Recent findings: The JELIS and REDUCE-IT trials both demonstrated significant reduction in cardiovascular events with high dose EPA in the form of icosapent ethyl (IPE), with a similar trend seen in the RESPECT-EPA trial. In contrast, the ASCEND, VITAL, STRENGTH, and OMEMI trials examining EPA+DPA combinations failed to demonstrate benefit. Beyond the difference in omega-3 FA formulations (IPE vs. omega-3 carboxylic acid), other differences between REDUCE-IT and STRENGTH include the achieved EPA levels, differing properties that EPA and DHA have on membrane stabilization, and the comparator oils tested in the trials.

Summary: The totality of evidence suggests EPA alone, administered in a highly-purified, high-dose form, improves cardiovascular outcomes among patients with elevated triglycerides at high cardiovascular risk, but EPA and DHA together does not. Current guidelines endorse the use of IPE in statin-treated patients at high cardiovascular risk who have triglycerides >135 mg/dl.

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