Health News from 3Care Therapeutics

DHA May Prevent Age-Related Dementia

Abstract

The risk for dementia, a major contributor to incapacitation and institutionalization, rises rapidly as we age, doubling every 5 years after age 65. Tens of millions of new Alzheimer's disease (AD) and other dementia cases are projected as elderly populations increase around the world, creating a projected dementia epidemic for which most nations are not prepared. Thus, there is an urgent need for prevention approaches that are safe, effective, and affordable. This review addresses the potential of one promising candidate, the (n-3) fatty acid docosahexaenoic acid (DHA), which appears to slow pathogenesis of AD and possibly vascular dementia. DHA is pleiotropic, acting at multiple steps to reduce the production of the B-amyloid peptide, widely believed to initiate AD. DHA moderates some of the kinases that hyperphosphorylate the t-protein, a component of the neurofibrillary tangle. DHA may help suppress insulin/neurotrophic factor signaling deficits, neuroinflammation, and oxidative damage that contribute to synaptic loss and neuronal dysfunction in dementia. Finally, DHA increases brain levels of neuroprotective brain-derived neurotrophic factor and reduces the (n-6) fatty acid arachidonate and its prostaglandin metabolites that have been implicated in promoting AD. Clinical trials suggest that DHA or fish oil alone can slow early stages of progression, but these effects may be apolipoprotein E genotype specific, and larger trials with very early stages are required to prove efficacy. We advocate early intervention in a prodromal period with nutrigenomically defined subjects with an appropriately designed nutritional supplement, including DHA and antioxidants.

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Serum Phospholipid Docosahexaenonic Acid Is Associated with Cognitive Functioning During Middle Adulthood

Abstract

Existing evidence links greater dietary intake of fish and (n-3) PUFA to better early brain development and lowered risk of cognitive disorders in late life. The mechanisms for these associations remain

unclear and may be related to specific (n-3) fatty acids and may concern cognitive function generally rather than only early brain development and age-related cognitive dysfunction. In this investigation, we tested potential associations between (n-3) fatty acids in serum phospholipids and major dimensions of cognitive functioning in mid-life adults. Participants were 280 community volunteers between 35 and 54 y of age who are free of major neuropsychiatric disorders and not taking fish oil supplements. Dietary biomarkers were a-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenonic acid (DHA) in serum phospholipids measured using GC. Five major dimensions of cognitive functioning were assessed with a 75-min battery of neuropsychological tests. In covariate adjusted regression models, higher DHA (mol %) was related to better performance on tests of nonverbal reasoning and mental flexibility, working memory, and vocabulary (P # 0.05). These associations were generally linear. Associations between DHA and nonverbal reasoning and working memory persisted with additional adjustment for participant education and vocabulary scores. Neither EPA nor ALA was notably related to any of the 5 tested dimensions of cognitive performance. Among the 3 key (n-3) PUFA, only DHA is associated with major aspects of cognitive performance in non-patient adults, 55 y old. These findings suggest that DHA is related to brain health throughout the lifespan and may have implications for clinical trials of neuropsychiatric disorders.

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