Abstract

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Vitamin E forms in Alzheimer's disease: a review of controversial and clinical experiences.

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OBJECTIVE: Vitamin E is a collective term for eight naturally occurring compounds, four tocopherols (alpha-, beta-, gamma-, and delta-) and four tocotrienols (alpha-, beta-, gamma-, and delta-). Although it is the major form of vitamin E in US diets, gamma-tocopherol receives little attention when compared to alpha-tocopherol, which is generally found in supplements and most studied for its effects on progression of cognitive impairment.

FINDINGS: Many clinical trials had been conducted with vitamin E and neurodegenerative disorders, with controversial results, including a recent study which disproves the benefit of vitamin E for Mild Cognitive Impairment and Alzheimer's Disease. This study examined the alpha-tocopherol supplement instead of gamma-tocopherol. Gamma-tocopherol has been found to be more effective in scavenging free radicals and nitrogen oxygen species that cause inflammation; both of these are components of neurodegenerative disorders. Secondly, the use of alpha-tocopherol supplements significantly reduces serum gamma-tocopherol, and this may have important biological effects.

CONCLUSIONS: Therefore, any potential health benefits of alpha-tocopherol supplements may be offset by deleterious changes in the bioavailability of other forms of tocopherols and tocotrienols. This might account for the null effects of alpha tocopherol supplementation in Mild Cognitive Impairment and Alzheimer's Disease.

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