

Abstract

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High plasma levels of vitamin E forms and reduced Alzheimer's disease risk in advanced age.

Mangialasche F, Kivipelto M, Mecocci P, Rizzuto D, Palmer K, Winblad B, Fratiglioni L.

Aging Research Center, Karolinska Institutet, Stockholm, Sweden.

OBJECTIVE: In this study we investigated the association between plasma levels of eight forms of vitamin E and incidence of Alzheimer's disease (AD) among oldest-old individuals in a population-based setting.

METHODS: A dementia-free sample of 232 subjects aged 80+ years, derived from the Kungsholmen Project, was followed-up to 6 years to detect incident AD. Plasma levels of vitamin E (alpha-, beta-, gamma, and delta-tocopherol; alpha-, beta-, gamma-, and delta-tocotrienol) were measured at baseline. Vitamin E forms-AD association was analyzed with Cox proportional hazard model after adjustment for several potential confounders.

RESULTS: Subjects with plasma levels of total tocopherols, total tocotrienols, or total vitamin E in the highest tertile had a reduced risk of developing AD in comparison to persons in the lowest tertile. Multi-adjusted hazard ratios (HRs) and 95% confidence interval (CI) were 0.55 (0.32-0.94) for total tocopherols, 0.46 (0.23-0.92) for total tocotrienols, and 0.55 (0.32-0.94) for total vitamin E. When considering each vitamin E form, the risk of developing AD was reduced only in association with high plasma levels of beta-tocopherol (HR: 0.62, 95% CI 0.39-0.99), whereas alpha-tocopherol, alpha-tocotrienol, and beta-tocotrienol showed only a marginally significant effect in the multiaadjusted model [HR (95% CI): alpha-tocopherol: 0.72 (0.48-1.09); alpha-tocotrienol: 0.70 (0.44-1.11); beta-tocotrienol: 0.69 (0.45-1.06)].

CONCLUSIONS: In conclusion, high plasma levels of vitamin E are associated with a reduced risk of AD in advanced age. The neuroprotective effect of vitamin E seems to be related to the combination of different forms, rather than to alpha-tocopherol alone, whose efficacy in interventions against AD is currently debated.

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