

Plasma tocopherols and risk of cognitive impairment in an elderly Italian cohort. Giovanni Ravaglia *et al.* Am J Clin Nutr 2008;87(5):1306-1313.

Background: Evidence that vitamin E may preserve cognitive function in elderly subjects is conflicting. The most abundant and most investigated form of vitamin E in humans is α -tocopherol, but other antioxidant tocopherols (β , γ , and δ) exist in nature. **Objective:** We aimed to investigate plasma concentrations of the natural tocopherols and the tocopherol oxidation markers α -tocopherylquinone (α TQ) and 5-nitro- γ -tocopherol (5NGT) in relation to cognitive function in the elderly. **Design:** Baseline plasma tocopherols and their oxidation markers were measured in 761 elderly Italian subjects from a population-based cohort assessed in 1999–2000 for mild cognitive impairment (MCI) and dementia. In 2003–2004, information about cognitive status was collected for 615 of the 666 subjects without baseline cognitive impairment. Tocopherols and oxidation markers were analyzed as plasma absolute values divided by serum total cholesterol because lipids affect their blood availability. Analyses were adjusted for sociodemographic, genetic, lifestyle, and medical confounders. **Results:** Compared with the corresponding lowest tertile, the risk of prevalent dementia was higher for the highest tertile of δ -tocopherol:cholesterol [odds ratio (OR): 3.87; 95% CI: 1.46, 10.27] and α TQ:cholesterol (4.02; 1.45, 11.14), but the risk of incident dementia was not directly associated with plasma vitamin E metabolites. A U-shaped association, with lower risk for intermediate tertiles, was found for prevalent MCI with 5NGT:cholesterol (0.39; 0.17, 0.91) and for incident dementia with γ -tocopherol:cholesterol (hazard ratio: 0.42; 95% CI: 0.22, 0.84). **Conclusions:** Plasma concentrations of some non- α -tocopherol forms of vitamin E are associated with cognitive impairment in elderly people. However, the associations depend on concurrent cholesterol concentration and need further investigation.

High Dosage of Ascorbic Acid and Alpha-Tocopherol Is Not Useful for Diminishing Oxidative Stress and DNA Damage in Healthy Elderly Adults. Raquel Retana-Ugalde *et al.* Ann Nutr Metab 2008;52(2):167-173.

Aim: To determine the useful dosage of ascorbic acid and alpha-tocopherol against oxidative stress and DNA damage in the elderly. **Methods:** A double-blind controlled clinical assay carried out in a sample of 66 healthy subjects divided into three age-paired random groups with 22 subjects in each group. Group A received placebo and group B was administered 500 mg of ascorbic acid and 400 IU of alpha-tocopherol, whereas group C received 1,000 mg of ascorbic acid and 400 IU of alpha-tocopherol for a 6-month period. The following measurements were performed before and after the 6-month treatment period: thiobarbituric acid reactive substances (TBARS); total antioxidant status (TAS); superoxide dismutase (SOD), and glutathione peroxidase (GPx) and DNA damage by comet assay. **Results:** After 6 months, group B subjects exhibited an increase in SOD and GPx enzyme levels; however, this was not statistically significant ($p > 0.05$). Likewise, TBARS and TAS concentrations remained unchanged ($p > 0.05$). In addition, in group C the decrease in TBARS and increase in SOD, GPx, and TAS were not statistically significant ($p > 0.05$). Similarly, average DNA migration showed no significant differences with high-dosage ascorbic acid and alpha-tocopherol. **Conclusion:** These findings suggest that administration of 1,000 mg of ascorbic acid plus 400 IU of alpha-tocopherol for 6 months is not useful for diminishing oxidative stress and DNA damage in healthy elderly adults. **Key Words:** Antioxidant supplementation, Ascorbic acid, Alpha-tocopherol, Elderly, Oxidative stress, DNA damage.