

Abstract

Am J Clin Nutr. 2007 Nov;86(5):1392-8.

Effect of high-dose {alpha}-tocopherol supplementation on biomarkers of oxidative stress and inflammation and carotid atherosclerosis in patients with coronary artery disease.

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BACKGROUND: Oxidative stress and inflammation are crucial in atherogenesis. **alpha-Tocopherol is both an antioxidant and an antiinflammatory agent.**

OBJECTIVE: We evaluated the effect of RRR-alpha-tocopherol supplementation on carotid atherosclerosis in patients with stable coronary artery disease (CAD) on drug therapy.

DESIGN: Randomized, controlled, double-blind trial compared RRR-alpha-tocopherol (1200 IU/d for 2 y) with placebo in 90 patients with CAD. Intimal medial thickness (IMT) of both carotid arteries was measured by high-resolution B-mode ultrasonography at 0, 1, 1.5, and 2 y. At 6-mo intervals, plasma alpha-tocopherol concentrations, C-reactive protein (CRP), LDL oxidation, monocyte function (superoxide anion release, cytokine release, and adhesion to endothelium), and urinary F(2)-isoprostanes were measured.

RESULTS: alpha-Tocopherol concentrations were significantly higher in the alpha-tocopherol group but not in the placebo group. **High-sensitivity CRP concentrations were significantly lowered with alpha-tocopherol supplementation than with placebo (32%; $P < 0.001$).** alpha-Tocopherol supplementation significantly reduced urinary F(2)-isoprostanes ($P < 0.001$) and monocyte superoxide anion and tumor necrosis factor release compared with baseline and placebo ($P < 0.001$). No significant difference was observed in the mean change in total carotid IMT in the placebo and alpha-tocopherol groups. In addition, no significant difference in cardiovascular events was observed ($P = 0.21$).

CONCLUSIONS: **High-dose RRR-alpha-tocopherol supplementation in patients with CAD was safe and significantly reduced plasma biomarkers of oxidative stress and inflammation but had no significant effect on carotid IMT during 2 y.**

PMID: 17991651