

Prostate cancer and supplementation with alpha-tocopherol and beta-carotene: incidence and mortality in a controlled trial

ABSTRACT: BACKGROUND:

Epidemiologic studies have suggested that vitamin E and beta-carotene may each influence the development of prostate cancer. In the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study, a controlled trial, we studied the effect of alpha-tocopherol (a form of vitamin E) and beta-carotene supplementation, separately or together, on prostate cancer in male smokers.

METHODS:

A total of 29,133 male smokers aged 50-69 years from southwestern Finland were randomly assigned to receive alpha-tocopherol (50 mg), beta-carotene (20 mg), both agents, or placebo daily for 5-8 years (median, 6.1 years). The supplementation effects were estimated by a proportional hazards model, and two-sided P values were calculated.

RESULTS:

We found 246 new cases of and 62 deaths from prostate cancer during the follow-up period. A 32% decrease (95% confidence interval [CI] = -47% to -12%) in the incidence of prostate cancer was observed among the subjects receiving alpha-tocopherol (n = 14564) compared with those not receiving it (n = 14569). The reduction was evident in clinical prostate cancer but not in latent cancer. Mortality from prostate cancer was 41% lower (95% CI = -65% to -1%) among men receiving alpha-tocopherol. Among subjects receiving beta-carotene (n = 14560), prostate cancer incidence was 23% higher (95% CI = -4%-59%) and mortality was 15% higher (95% CI = -30%-89%) compared with those not receiving it (n = 14573). Neither agent had any effect on the time interval between diagnosis and death.

CONCLUSIONS:

Long-term supplementation with alpha-tocopherol substantially reduced prostate cancer incidence and mortality in male smokers. Other controlled trials are required to confirm the findings.

Heinonen OP; Albanes D; Virtamo J; Taylor PR; Huttunen JK; Hartman AM; Haapakoski J; Malila N; Rautalahti M; Ripatti S; Maenpaa H; Teerenhovi L; Koss L; Virolainen M; Edwards BK. Department of Public Health, University of Helsinki, Finland. J Natl Cancer Inst 1998 Mar 18;90(6):440-6. NLM CIT. ID: 98180463.

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