Selenium supplementation and prostate cancer mortality.

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Abstract

BACKGROUND: Few studies have evaluated the relation between selenium supplementation after diagnosis and prostate cancer outcomes.

METHODS: We prospectively followed 4459 men initially diagnosed with nonmetastatic prostate cancer in the Health Professionals Follow-Up Study from 1988 through 2010 and examined whether selenium supplement use (from selenium-specific supplements and multivitamins) after diagnosis was associated with risk of biochemical recurrence, prostate cancer mortality, and, secondarily, cardiovascular disease mortality and overall mortality, using Cox proportional hazards models. All P values were from two-sided tests.

RESULTS: We documented 965 deaths, 226 (23.4%) because of prostate cancer and 267 (27.7%) because of cardiovascular disease, during a median follow-up of 8.9 years. In the biochemical recurrence analysis, we documented 762 recurrences during a median follow-up of 7.8 years. Crude rates per 1000 person-years for prostate cancer death were 5.6 among selenium nonusers and 10.5 among men who consumed 140 or more μg/day. Crude rates per 1000 person-years were 28.2 vs 23.5 for all-cause mortality and 28.4 vs 29.3 for biochemical recurrence, for nonuse vs highest-dose categories, respectively. In multivariable analyses, men who consumed 1 to 24 μg/day, 25 to 139 μg/day, and 140 or more μg/day of supplemental selenium had a 1.18 (95% confidence interval [CI] = 0.73 to 1.91), 1.33 (95% CI = 0.77 to 2.30), and 2.60-fold (95% CI = 1.44 to 4.70) greater risk of prostate cancer mortality compared with nonusers, respectively, P trend = .001. There was no statistically significant association between selenium supplement use and biochemical recurrence, cardiovascular disease mortality, or overall mortality.

CONCLUSION: Selenium supplementation of 140 or more μg/day after diagnosis of nonmetastatic prostate cancer may increase risk of prostate cancer mortality. Caution is warranted regarding usage of such supplements among men with prostate cancer.

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Learning from history in micronutrient research. [J Natl Cancer Inst. 2015]