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Daily Multivitamins Have Minimal, if Any, Effect on Preventing Cancer in Men and Do Not Affect Mortality

Clinical Question

Do daily multivitamin supplements reduce the risk of cancer and subsequent morbidity/mortality in adult men?

Bottom Line

Daily multivitamin supplementation results in a minimal, if any, reduction in epithelial cell cancers in men. This study found no significant benefit to multivitamin supplementation in reducing the risk of prostate, colorectal, lung, or bladder cancers. The risks of cancer-related mortality and all-cause mortality were also not reduced by multivitamin supplementation. (Level of Evidence = 1b–)

Reference

Gaziano JM, Sesso HD, Christen WG, et al. Multivitamins in the prevention of cancer in men: the Physicians' Health Study II randomized controlled trial. *JAMA*. 2012;308(18):1871-1880.

Study design: Randomized controlled trial (double-blinded)

Funding source: Government

Allocation: Uncertain

Setting: Population-based

Synopsis

As part of the Physicians' Health Study—which evaluated various health interventions including aspirin, vitamin E, and beta carotene—these investigators analyzed separate data on the potential value of daily multivitamin supplements on cancer prevention. Eligible men (n = 14,641) 50 years or older randomly received (uncertain allocation concealment) a common daily multivitamin

supplement (Centrum Silver) or matched placebo. Of these, 5.1 and 9.0 percent had a history of cardiovascular disease and cancer, respectively. Approximately 40 percent were former smokers, and 3.6 percent were current smokers. Individuals masked to treatment group assignment assessed outcomes, including all cancer and mortality end points. Complete follow-up occurred for more than 98 percent of participants for a median of 11.2 years.

Using intention-to-treat analysis, the authors report a significant reduction in the incidence of total cancer cases in men taking a daily multivitamin compared with those taking placebo (17.0 versus 18.3 events, respectively, per 1,000 person-years). However, I used a validated statistical tool to calculate the number needed to treat and the 95% confidence interval using the actual number of cases among patients in each treatment group, and the difference was not statistically significant. The authors note that their analysis was adjusted, and thus resulted in statistical significance. (Without that adjustment, would this paper have been published in *JAMA*?) If the result as reported was significant, the number needed to treat would be 83 for 11.2 years. Only the number of epithelial cell cancers was significantly lower among individuals taking daily multivitamin supplements; there were no significant differences in prostate, colorectal, lung, or bladder cancers between the treatment group and the control group. There was also no significant difference in cancer-related mortality or all-cause mortality. Results were similar for patients with a history of cancer.

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