Vitamin D May Improve Cancer Outcomes

A pill a day is linked with a lower risk of dying of cancer.

November 30, 2020 By Caroline Tien

Men and women who supplement their diet with vitamin D_3 are at reduced risk of developing metastatic or fatal cancer, according to a new analysis of a recent study. The analysis was conducted by Paulette D. Chandler, MD, MPH, an associate physician at Brigham and Women's Hospital in Boston, and colleagues.

The Vitamin D and Omega-3 trial (VITAL) examined the effects of vitamin D_3 and omega-3 supplementation on cancer and cardiovascular disease risk in 25,871 middle-aged people—defined as men above age 50 and women above age 55—between November 1, 2011, and December 31, 2017. Participants took a vitamin D_3 supplement or a placebo or omega-3 or a placebo daily and reported any new medical diagnoses yearly for five years. The study did not find that taking either supplement reduced the overall risk of developing cancer.

However, results indicated that those who took vitamin D_3 and did develop cancer were less likely to die of the disease. That is what the new 2020 analysis, published in JAMA Network Open, set out to examine more closely.

In total, the VITAL authors recorded 500 advanced cancer diagnoses—226 in participants taking vitamin D_3 and 274 in participants taking a placebo equivalent. (Advanced cancer was defined as metastatic or fatal cancer.) While the difference may seem small, it represented a 17% reduction in relative risk, making it statistically significant, according to MedPage Today.

The reduction was most pronounced in participants with a normal weight. It was not evident in participants with overweight or obesity, suggesting that "factors associated with obesity might dampen the effect of vitamin D_3 supplementation," Chandler and colleagues wrote. They theorized that obesity may impair vitamin D metabolism such that blood levels of the vitamin are lower at the same level of supplementation.

The vitamin D_3 supplements contained 2,000 international units (IU)—much more than the recommended dietary allowance of 600 IU for adult men and women under age 70 but well below the tolerable upper intake level of 4,000 IU.

As for the reasons behind the effects of vitamin D_3 supplementation on advanced cancer risk, Chandler and colleagues put forth a hypothesis. “Laboratory and animal studies show that vitamin D_3 may inhibit carcinogenesis and slow tumor progression,” they wrote. “Vitamin D_3 may decrease tumor invasiveness and propensity to metastasize, leading to reduced cancer mortality.”

In other words, popping vitamin D_3 won’t reduce cancer risk but may improve cancer outcomes.

To read more about the impact of vitamin D on overall cancer risk, click here. And to read about the impact of several dietary supplements on breast cancer risk, click here.
