

Extra vitamin E linked to prostate cancer, but diet still merits study

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(Medical Xpress) -- Taking vitamin E supplements appear to increase a man's risk of prostate cancer, according to a study that appears in the Oct. 12 issue of the *Journal of the American Medical Association*.

A multi-institutional team of researchers reported findings from the Selenium and Vitamin E Cancer Prevention Trial (SELECT), a study begun in 2001. They found that men age 50 and older who took 400 units of vitamin E daily were diagnosed with prostate cancer at a 17 percent higher rate than men who popped placebos.

UCSF's June Chan, ScD, is no stranger to studies of dietary supplements and cancer that turn out to be a bust, including studies of vitamin E.

Earlier, as a graduate student, Chan investigated vitamin E. Working with Harvard epidemiologist Walter Willet, she found no epidemiological evidence that vitamin E prevented prostate cancer in men generally. However, the researchers did see a trend toward fewer prostate cancers in smokers.

Chan remains optimistic about identifying dietary and lifestyle interventions that prove beneficial to health.

“Healthy eating habits, regular physical activity, not smoking, and avoiding overweight and obesity remain important tools for us to prevent several major chronic diseases,” she says.

Disappointing Clinical Trials for Vitamins

Supplements, despite promising signs from earlier epidemiological studies, have fared poorly in controlled clinical trials, in which participants are randomly assigned to different treatment arms. These controlled clinical trials remain the gold standard by which to evaluate any health claims.

An early disappointing milestone in anti-oxidant supplement research was a 1994 study of vitamin E and beta-carotene as a means to lower lung cancer risks among smokers. Daily supplementation with 50 units of Vitamin E had no benefit, while beta-carotene was associated with an increased risk for lung cancer.

However, in that same clinical trial researchers observed that there were more than 30 percent fewer cases of prostate cancer and prostate cancer deaths among the men who took the vitamin E supplements. This association spurred interest in launching the SELECT trial, focused specifically on prostate cancer.

Although there were more cancers among men in SELECT who took supplements, it's too soon to say whether [Vitamin E](#) or selenium supplementation will lead to more prostate cancer deaths among the study participants, Chan says. More cancers does not necessarily mean more deadly cancers.

“The majority of these cancers were earlier-stage disease detected by PSA screening. It is likely that a fair proportion of these are indolent tumors – meaning cancers that would not cause morbidity or mortality if left undiagnosed.”

The study is another reminder that more is not always better, Chan says. “Supplements are not the same as eating a healthy diet,” she adds.

Prostate Cancer Outcomes and Lifestyle

For several years Chan has been working with UCSF urologists to investigate whether lifestyle factors can affect cancer outcomes and quality of life in prostate cancer patients.

There will be nearly 241,000 men diagnosed with prostate cancer in the United States in 2011, and more than 33,000 men will die of the disease, according to American Cancer Society estimates.

“It has become increasingly important to identify what aspects of diet, exercise, or other lifestyle practices may improve cancer survivorship,” Chan says.

“Prostate cancer is often a relatively slow-growing tumor – compared to tumors that arise in other organs. We wanted to address the question of whether even after diagnosis, lifestyle changes could have an impact – especially because a cancer diagnosis often motivates people to make changes.”

Chan's recent research has supported this hypothesis. With colleagues at UCSF and at Harvard, she reported that among men diagnosed with prostate cancer localized within the gland, eating poultry without the skin, red meat and fish was not associated with worsening disease. However, in the same study eating eggs or poultry with skin might have increased the likelihood that prostate cancer would worsen.

Chan led another study in which men with low-risk prostate cancer were assigned to take supplements of fish oil or lycopene – an anti-oxidant found in tomatoes. The supplements activated genes in metabolic pathways in the prostate gland that affect sex hormones. Sex hormones drive prostate cancer, and these results help researchers understand how diet may influence whether tumors form and how they grow, Chan says.

In a larger study of men with prostate cancer, Chan found that prostate cancer was about 60 percent less likely to advance further in those who ranked in the top 25 percent in reported consumption of cruciferous vegetables such as broccoli, cauliflower, cabbage, Brussels sprouts, bok choy and kale.

Other lifestyle factors, including smoking and exercise, also matter for men diagnosed with prostate cancer. Biking, playing tennis, jogging, or swimming for more than three hours every week may substantially lessen the likelihood of dying from the disease, Chan found.

Even milder forms of exercise, such as brisk walking, were associated with reduced risk of prostate cancer recurrence in one of Chan's studies, and with reduced risk of dying from any cause.

On the other hand, in another study smoking at the time of diagnosis was associated with greater overall mortality and more heart disease deaths – not a surprise. But smoking also was associated with a higher likelihood of dying from prostate cancer.

“Our results reaffirm the benefits of non-smoking, exercise, and eating vegetables not just for overall health, but also for prostate cancer,” Chan says. “While these are recommendations that patients can act on themselves, we also hope to use our data to understand the biology of [prostate cancer](#) better, so that we can develop better therapeutics and management strategies.”

Reported Supplement Consumption Associated with Death in Women

In another study of supplements that appeared in the Oct. 10 issue of the *Archives of Internal Medicine*, researchers found that women who reported taking any of a variety of vitamins and minerals – multivitamins, vitamins B6 and folic acid, iron, magnesium, zinc and copper – were more likely to die. Calcium supplements [were associated with lower mortality](#) in the study.

“This study was observational in nature and while it generally underscores the importance, again, of getting nutrients mainly from a balanced diet rather than from supplements, it is also challenging to interpret because of the way the study was designed,” Chan says.

“The study was unable to completely account for the possibility that women who felt bad because of some underlying illness may have started to take more [supplements](#) without a clear diagnosis.

“It will be interesting to see the results of the Physicians Health Study II, which is a randomized clinical trial examining multivitamins versus placebo for mortality outcomes. This study will be reported on in the near future.”

Provided by University of California, San Francisco

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