Vitamin D Increases Breast Cancer Patient Survival

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Breast cancer patients with high levels of vitamin D in their blood are twice as likely to survive the disease as women with low levels of this nutrient, report University of California, San Diego School of Medicine researchers in the March issue of *Anticancer Research*.

In previous studies, Cedric F. Garland, DrPH, professor in the Department of Family and Preventive Medicine, showed that low vitamin D levels were linked to a high risk of premenopausal breast cancer. That finding, he said, prompted him to question the relationship between 25-hydroxyvitamin D — a metabolite produced by the body from the ingestion of vitamin D — and breast cancer survival rates.

Garland and colleagues performed a statistical analysis of five studies of 25-hydroxyvitamin D obtained at the time of patient diagnosis and their follow-up for an average of nine years. Combined, the studies included 4,443 breast cancer patients.

"Vitamin D metabolites increase communication between cells by switching on a protein that blocks aggressive cell division," said Garland. "As long as vitamin D receptors are present tumor growth is prevented and kept from expanding its blood supply. Vitamin D receptors are not lost until a tumor is very advanced. This is the reason for better survival in patients whose vitamin D blood levels are high."

Women in the high serum group had an average level of 30 nanograms per milliliter (ng/ml) of 25-hydroxyvitamin D in their blood. The low group averaged 17 ng/ml. The average level in patients with breast cancer in the United States is 17 ng/ml.

"The study has implications for including vitamin D as an adjuvant to conventional breast cancer therapy," said co-author Heather Hofflich, DO, UC San Diego associate professor in the Department of Medicine.

Garland recommended randomized controlled clinical trials to confirm the findings but suggested physicians consider adding vitamin D into a breast cancer patient's standard care now and then closely monitor the patient.

"There is no compelling reason to wait for further studies to incorporate vitamin D supplements into standard care regimens since a safe dose of vitamin D needed to achieve high serum levels above 30 nanograms per milliliter has already been established," said Garland.

A 2011 meta-analysis by Garland and colleagues estimated that a serum level of 50 ng/ml is associated with 50 percent lower risk of breast cancer. While there are some variations in absorption, those who consume 4,000 International Units (IU) per day of vitamin D from food or a supplement normally would reach a serum level of 50 ng/ml. Garland urged patients to ask their health care provider to measure their levels before substantially increasing vitamin D intake.

According to the National Institutes of Health, the current recommended daily allowance for vitamin D is 600 IU for adults and 800 IU for people over 70 years old.

Additional contributors to the study include first author Sharif B. Mohr and June Kim, Science Applications International Corporation; and Edward D. Gorham, UCSD Department of Family and Preventive Medicine.

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