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Intake of vitamin D and calcium associated with lower risk of breast cancer before menopause

Women who consume higher amounts of calcium and vitamin D may have a lower risk of developing premenopausal breast cancer, according to a report in the May 28 issue of Archives of Internal Medicine, one of the JAMA/Archives journals.

Data from animal studies have linked calcium and vitamin D to breast cancer prevention, according to background information in the article. However, epidemiologic studies on humans have been less conclusive.

Jennifer Lin, Ph.D., of Brigham and Women's Hospital and Harvard Medical School, Boston, and colleagues assessed 10,578 premenopausal and 20,909 postmenopausal women age 45 and older who were part of the Women's Health Study. At the beginning of the study (in 1993 or 1995), the women completed a questionnaire about their medical history and lifestyle, plus a food frequency questionnaire that detailed how often they consumed certain foods, beverages and supplements during the previous year. Every six months during the first year and then every year after that, participants returned follow-up questionnaires indicating whether they had been diagnosed with breast cancer.

Over an average of 10 years of follow-up, 276 premenopausal women and 743 postmenopausal women developed breast cancer. Calcium and vitamin D intake were moderately associated with a lower risk of breast cancer before but not after menopause. The inverse associated in premenopausal women appeared more pronounced for more aggressive breast tumors.

"A possible explanation for the evident difference by menopause status may be related to the joint relationship among calcium, vitamin D and insulinlike growth factors (IGFs)," they continue. "In vitro studies have suggested that calcium and vitamin D exert anticarcinogenic effects on breast cancer cells expressing high levels of IGF-1 and IGF binding protein 3. Calcium, vitamin D and IGF binding protein 3 have been shown in vitro to interact with each other in promoting growth inhibition in breast cancer cells." Since blood levels of these compounds decline with age, they would be more prevalent in younger, premenopausal women.

"Further investigation is warranted to study the potential utility of calcium and vitamin D intake in reducing the risk of breast cancer," the authors conclude.

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