

Curcumin May Impede Breast Cancer Metastasis

A recent study published in the journal *Clinical Cancer Research* found that curcumin, a substance in the spice turmeric, prevents breast cancer from spreading to the lungs of mice given the compound.*

Researchers at the University of Texas MD Anderson Cancer Center injected 60 mice with human metastatic breast cancer cells. When the tumors reached the size of 10 millimeters, they were surgically removed. Five days later, half the mice were fed diets enhanced with curcumin, while the remainder received standard diets until the study's conclusion. Fifteen of the mice in each group were injected with paclitaxel (Taxol®) at days 10, 17, and 24 following tumor removal. Although paclitaxel is effective in treating breast cancer, it also encourages metastasis when used for an extended period and therefore is not effective in treating the advanced form of the disease.

Upon examination of the animals' lungs five weeks after removal

of the tumors, 96% of the mice who received neither curcumin nor paclitaxel had visible metastases. While paclitaxel alone elicited a modest reduction in visible metastases, curcumin produced a significant reduction, and the combination of curcumin and paclitaxel prevented the macrometastases entirely. Microscopic metastases were found in only 28% of the mice receiving the curcumin/drug combination, and these consisted of only a few cells, suggesting that the treatment prevented the growth of tumor cells present in the lungs before the primary tumors were removed.

Paclitaxel's toxicity activates an inflammatory protein—nuclear factor-kappa beta—that induces metastasis, but curcumin inhibits this response. The finding that adding curcumin to paclitaxel results in reduced metastases could allow for a lower dose of the potentially toxic drug to be administered.

Lead researcher Bharat Aggarwal, PhD, commented, "We are excited about the results of the study and the possible implications for taking the findings into the clinic in the next several years. At this time, advanced breast cancer is a difficult foe to fight with few proven treatments available after surgery, chemotherapy, and radiation therapy."

—Dayna Dye

Reference

* Available at:
<http://clincancerres.aacrjournals.org/>.
Accessed October 18, 2005.

PROCESSED FOODS INCREASE PROSTATE CANCER RISK

A diet consisting primarily of refined grain products and processed and red meats increases men's risk of developing prostate cancer, according to Canadian researchers.* These findings confirm and expand on the results of the Health Professionals Follow-up and Physicians' Health studies, which demonstrated the relationship between prostate cancer and intake of dietary fat and red meat, while complementing myriad studies establishing the protective effects of diets rich in vegetables.

The study enrolled 414 men, including 80 with primary prostate cancer and 314 controls matched for age, body mass index, socioeconomic status, and lifestyle characteristics (such as tobacco use, alcohol consumption, and physical activity). All subjects completed a questionnaire on how often they consumed 67 food and beverage items during the previous two years.

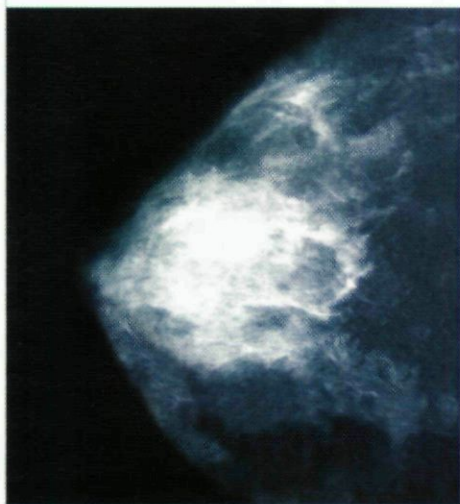
Four dietary patterns emerged among the participants, which were designated as: 1) Healthy Living, consisting of vegetables, fruits, whole grains, fish, and poultry; 2) Traditional Western, including red and processed meats, milk, sweets, and hard liquor; 3) Processed Diet, characterized by red and processed meats, organ meats, refined grains, white bread, onions and tomatoes, vegetable oils, juices, and soft drinks; and 4) Beverages, comprising tap water, soft drinks, fruit juices, potatoes, and poultry.

Although not statistically significant, the Healthy Living and Beverages dietary patterns were associated with a lower risk of prostate cancer, while the Traditional Western diet was associated with a higher risk. The Processed Diet pattern, however, was strongly and positively associated with an increased risk of prostate cancer. This dietary pattern is likely to contain heterocyclic and polycyclic aromatic amines formed during the cooking and preservation of meat. Moreover, there was a dose-dependent relationship between the Processed Diet pattern and prostate cancer risk, with the highest levels of consumption associated with a nearly three-fold greater risk.

—Linda M. Smith, RN

Reference

* Walker M, Aronson KJ, King W, et al. Dietary patterns and risk of prostate cancer in Ontario, Canada. *Int J Cancer* 2005. Sept 10; 116(4):592-8.



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