NSAIDs benefit overweight breast cancer patients, study finds

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Coated aspirin tablets. Image: Wikimedia Commons.

Researchers have determined that postmenopausal overweight or obese breast cancer patients receiving hormone therapy as part of their treatment and who use nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin or ibuprofen have significantly lower breast cancer recurrence rates and a sizable delay in time to cancer recurrence.

The findings, published in the Aug. 14 edition of *Cancer Research*, suggest a new possibility for reducing the incidence of breast cancer recurrence among overweight and obese postmenopausal women, who have a comparatively higher risk of recurrence.

Using a retrospective analysis of human subjects and cell cultures, the researchers determined that NSAID use reduces the recurrence rate of the most common form of breast cancer, ERα positive breast cancer, by

50 percent and extends patients' disease-free period by more than two years. ER positive breast cancers, which grow in response to exposure to the hormone estrogen, account for about 75 percent of diagnoses.

Cancer researcher Linda deGraffenried of The University of Texas at Austin designed the study, working closely with Andrew Brenner, an oncologist from the Cancer Therapy & Research Center at The University of Texas Health Science Center at San Antonio, and Murali Beeram, a cancer specialist from the START Center for Cancer Care in San Antonio, Texas.

The investigators caution that these results are preliminary, and studies are being conducted to confirm these initial findings.

"Overweight or obese women diagnosed with breast cancer are facing a worse prognosis than normal-weight women," says deGraffenried. "We believe that obese women are facing a different disease. There are changes at the molecular level. We seek to modulate the disease promoting effects of obesity."

The investigators first examined medical records of 440 breast cancer patients, comparing the prognoses of those who took NSAIDs with those who did not.

The researchers designed a second study to examine how breast cancer cells behave in the body. By bathing ERα positive breast cancer cells in blood serum from obese women, they hoped to mimic the environment that encourages tumors to grow, proliferate and metastasize.

Although the mechanism causing breast cancer in obese women to be more aggressive and less responsive to treatment is not completely understood, the researchers believe that inflammation plays a pivotal role. Their findings also suggest inflammation negatively affects the

effectiveness of aromatase inhibitors, a class of cancer drugs commonly prescribed to prevent cancer recurrence.

"Clinicians are finding that the five-year recurrence rate for postmenopausal women is much higher on aromatase inhibitors when the patient is obese," says deGraffenried. "We would like to identify which women are most likely to benefit from interventions like adding NSAIDs to treatment regimens."

Laura Bowers, who led the cell culture segment of the study, suggests that overweight or obese postmenopausal women—those at greater risk for breast cancer development—might benefit from taking a low-dose aspirin daily. "What this study does is present great promise that a fairly inexpensive and nontoxic agent might benefit obese and overweight breast cancer patients who are at a higher risk of aromatase inhibitor failure—but further studies are needed to confirm these results," says Bowers.

The research team is planning a larger prospective study to identify disease biomarkers and monitor patient response to the addition of NSAIDs to breast cancer treatment.

Provided by University of Texas at Austin

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