Medical Xpress

Limiting carbs could reduce breast cancer recurrence in women with positive IGF1 receptor

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Dartmouth researchers have found that reducing carbohydrate intake could reduce the risk of breast cancer recurrence among women whose tumor tissue is positive for the IGF-1 receptor. The study, "Risk of Breast Cancer Recurrence Associated with Carbohydrate Intake and Tissue Expression of IGFI Receptor," will appear in the July issue of *Cancer Epidemiology Biomarkers & Prevention*.

"There is a growing body of research demonstrating associations between obesity, diabetes, and cancer risk," said lead author Jennifer A. Emond, an instructor in the Department of Community and Family Medicine at the Geisel School of Medicine at Dartmouth College. "There are similarities between the biological pathways that underlie all of these conditions, and there is some evidence to suggest that over-activation of the insulin/insulin-like growth factor axis, which increases the availability of IGF1 in the blood, may relate to a poor prognosis among breast cancer survivors."

Receptors for IGF1 have been found in breast tumor tissue, and expression of those receptors may contribute to treatment resistance among breast cancer survivors. Since diet can influence insulin activation, the researchers wondered whether diet could impact breast cancer prognosis based on expression of the IGF1 receptor in the primary breast tumor tissue.

Using an unusual approach, this study assessed the combined association of two factors implicated in tumor growth—carbohydrate intake and IGF1 receptor status—to test whether activating the insulin/insulin-like growth-factor axis can impact breast cancer. Since carbohydrates stimulate the biological pathway that can increase concentrations of IGF1, the researchers focused on carbohydrate intake. The women they studied were part of a larger intervention trial called the Women's Healthy Eating and Living (WHEL) study conducted between 2001 and 2007.

"We found an association between increased breast cancer recurrence in women with a primary breast cancer tumor that was positive for the IGF1 receptor, which is consistent with other studies," said Emond. "We further found that a decreased carbohydrate intake was associated with decreased breast cancer recurrence for these women."

This is the first study to suggest that it might be possible to personalize recommended diets for breast cancer survivors based on the molecular characteristics of their primary tumor. Further research is needed to confirm these findings, and Emond notes that breast cancer survivors should not be concerned about dramatically lowering their carbohydrate intake based on this study.

"There are still many unanswered questions regarding this study, including what type of carbohydrate-containing foods may be the most important foods that breast cancer survivors should limit," she said. "Breast cancer survivors should continue to follow a plant-based dietary pattern as suggested by the American Association for Cancer Research and the American Cancer Association, which means eating lots of fiber rich vegetables, legumes, and fruits; consuming whole grains and also limiting refined grains, starchy vegetables, and added sugar."

More information: cebp.aacrjournals.org/content/ …

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