

Cancer Advances: Gene May Help Guide Adjuvant Treatment for High-Risk Breast Cancer

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A new study shows that breast cancer patients with a greater number of copies of a gene called TOP2A are 45% more likely than women without this characteristic to benefit from chemotherapy after surgery ("adjuvant chemotherapy") with a class of drugs called anthracyclines. The study, which will be published online May 8 in the *Journal of Clinical Oncology*, suggests that heightened levels of TOP2A could help doctors to better identify breast cancer patients that are most likely to benefit from these drugs.

Previous research has shown that extra copies of TOP2A occur almost exclusively in patients who also have extra copies of another gene, HER2/neu, which doctors routinely use to help guide breast cancer treatment.

Researchers from the University of Tampere in Finland analyzed stored tissue samples from 391 patients who had undergone treatment for breast cancer and were at high risk for the disease to return. Of the 391 tissue samples, 32.7% had extra copies of HER2/neu, and 37% of those also had extra copies of TOP2A.

Initially, all patients received adjuvant chemotherapy with an anthracycline. After this initial treatment, some patients continued on anthracycline-based chemotherapy, and some underwent high-dose, non-anthracycline-based chemotherapy followed by stem-cell transplantation.

After six years, among patients who only had extra copies of HER2/neu, researchers found no significant difference in the risk that the cancer would return between women in the anthracycline or stem-cell transplantation groups. However, when looking specifically at women with extra copies of TOP2A, those who received additional rounds of personalized anthracycline-based chemotherapy were 45% more likely to avoid a return of the cancer than those who underwent chemotherapy that was not anthracycline based.

What Does This Mean for Patients?

Increasingly, physicians are "personalizing" breast cancer treatment based on the presence of certain genetic characteristics, such as over-expression of HER2/neu or estrogen and progesterone receptors. Women who have been diagnosed with breast cancer should talk with their physicians about the genetic characteristics of their cancer and all available treatment options for their specific form of the disease.

Helpful Links?

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Links:

[1] <http://www.jco.org/>

[2] <http://www.plwc.org/>