

Test can reduce recurrence of breast cancer

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The new GeneSearch Breast Lymph Node Assay, manufactured by Veridex L.L.C., a Johnson & Johnson company, is being used at the Medical College of Georgia to examine half of the tissue in the sentinel lymph node, the first place breast cancer typically spreads. The test examines the node for genes expressed by breast cancer could reduce the risk of recurrence and multiple surgeries, doctors say. Credit: Medical College of Georgia

A new test that examines large sections of the sentinel lymph node for genes expressed by breast cancer could reduce the risk of recurrence and multiple surgeries, doctors say.

The GeneSearch Breast Lymph Node Assay, manufactured by Veridex, L.L.C., a Johnson & Johnson company, is being used at the Medical College of Georgia to examine half of the tissue in the sentinel lymph

node, the first place breast cancer typically spreads. The sample represents more than 10 times the amount of tissue examined in traditional biopsies.

And because the test examines the tissue with molecular tools, it is more sensitive, says Dr. Zixuan (Zoe) Wang, molecular biologist and scientific director of MCG's Georgia Esoteric and Molecular Diagnostic Labs, L.L.C.

“When we look at the tissue with the GeneSearch test, we are looking for excessive amounts of mamoglobin and cytokeratin 19, both genes that are expressed more in breast cancer tissue,” Dr. Wang says. “If those genes are present in excessive amounts, we know the cancer has metastasized.”

MCG is the first place in Georgia to offer the test, which Time Magazine named one of the top-10 medical breakthroughs of 2007.

Done during a lumpectomy, the GeneSearch test uses molecular diagnostic methods to examine more tissue than traditional sentinel node biopsies, reducing the chance of false negative results, says Dr. Stephen Peiper, chair of the MCG Department of Pathology and Georgia Cancer Coalition Distinguished Cancer Clinician and Scientist.

The sentinel node, located in the armpit, filters fluid from the breast.

“During a traditional sentinel node biopsy, a surgeon would remove a node, then the pathologist would cut that section in half and cut that section to a quarter of the original sample size,” Dr. Peiper says. “They then would cut wafer-thin slices from those sections, freeze and stain them, and look for cancer cells under a microscope. This technique, called frozen section, would be done during the lumpectomy surgery. If the tissue is positive for cancer cells, the surgeon removes more nodes

from the patient, but if it is negative, the surgery is over.”

The problem with that type of test, he says, can come when pathologists review more tissue slices during a confirmatory second test, called a permanent section and done a day later.

Permanent section tests are done the day after surgery because the tissue is set with a fixative that causes proteins in cells to harden for better examination.

“The cancer cells may not have been present in the part of the node that we looked at the day before in the frozen section,” Dr. Peiper says. “But on the second day, we may find them in the other section. We perform both the traditional test and the new GeneSearch molecular test in parallel to provide the best care for our patients.”

The larger the sample, he says, the better the chance of catching the cancer during the intraoperative test.

“If there are small amounts of cancer cells in the whole node, we may or may not see those with the traditional tests, because we only examine a small section of tissue,” he says. “With this technology, we increase the chance of detecting them.”

Nearly 20 percent of women with negative nodes confirmed by a traditional biopsy end up having a recurrence and metastasis, Dr. Peiper says.

“There is a higher false-negative rate with traditional sentinel node biopsies,” says Dr. Scott Lind, professor and chief of the MCG Section of Surgical Oncology. “If that happens, the patient has to come back in for another surgery to take out more lymph nodes that have likely harbored the breast cancer cells.”

In clinical trials, the new test correctly identified more than 95 percent of patients whose cancer had spread to their lymph nodes, according to Veridex, L.L.C.

“This will help us provide better care to patients and better overall treatment,” Dr. Lind says.

Source: Medical College of Georgia

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