21-gene recurrence score and receipt of chemotherapy in patients with breast cancer

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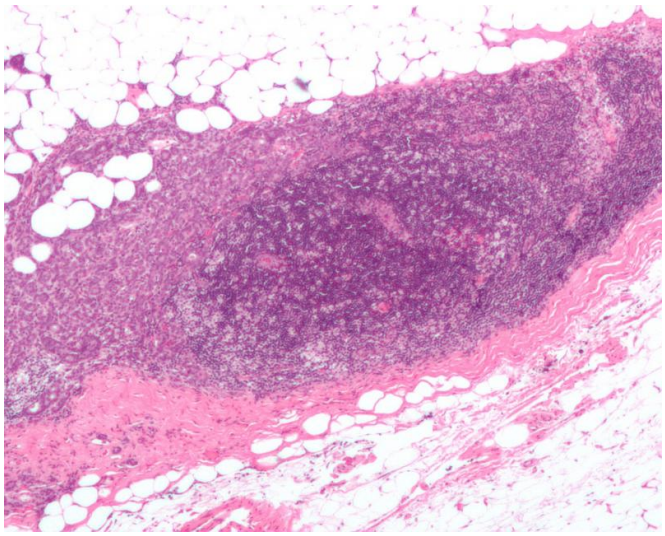

Micrograph showing a lymph node invaded by ductal breast carcinoma, with extension of the tumour beyond the lymph node. Credit: Nephron/Wikipedia

Use of the 21-gene recurrence test score was associated with lower chemotherapy use in high-risk patients and greater use of chemotherapy in low-risk patients compared with not using the test among a large group of Medicare beneficiaries, according to an article published online by *JAMA Oncology*.

National Comprehensive Cancer Network (NCCN) guidelines recommend considering chemotherapy in estrogen receptor (ER)-positive, node-negative breast cancer for all but the smallest tumors. Several studies have suggested the 21-gene recurrence score assay (testing) is cost-effective possibly by prompting more appropriate allocation of chemotherapy to patients most likely to benefit.

Michaela A. Dinan, Ph.D., of the Duke Clinical Research Institute, Durham, N.C., and coauthors investigated the association between adoption of the 21-gene recurrence score assay testing in a nationally representative sample of Medicare patients with early stage breast cancer and the use of chemotherapy.

The study included 44,044 patients with low-risk (24 percent), intermediate-risk (51.3 percent) or high-risk disease (24.6 percent lymph node positive) as defined by NCCN guidelines. Overall, 14.3 percent of patients received chemotherapy within 12 months after diagnosis. The authors observed no overall association between receipt of the testing and chemotherapy use.

However, there was an interaction between NCCN risk and use of the assay. The genetic testing appeared to be associated with decreased chemotherapy in high-risk patients and increased chemotherapy use in low-risk patients. In a subgroup analysis of patients between the ages of 66 to 70, there was an overall decrease in chemotherapy from 29 percent to 24 percent that appeared limited to patients with high-risk disease and patients who underwent genetic testing. The authors note they could not determine to what extent decreased chemotherapy use reflects the influence of genetic testing or unrelated changes in practice.

The authors note their study has limitations, including that only testing paid for by Medicare could be detected in the analysis.

"Our data suggest that use of the RS [21-gene recurrence score] assay may have decreased chemotherapy use in general practice among younger patients with high-risk disease in whom receipt of chemotherapy would have otherwise been likely but that it was associated with greater chemotherapy use in patients with low-risk disease," the study concludes.

In a related commentary, Allison W. Kurian, M.D., M.Sc., of Stanford University School of Medicine,

California, and Christopher R. Friese, Ph.D., R.N., University of Michigan School of Nursing, Ann Arbor, write: "As tumor and germline assays expand from 21 genes to the whole genome, there is growing need for a framework to evaluate the contribution of precision medicine to cancer treatment quality. Research initiatives that integrate the breadth of cancer registries with the depth of physician and patient survey data can offer a window into the clinical encounter, along with an outward view of impact across the population."

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