Study indicates that advances in precision medicine have improved breast cancer treatment

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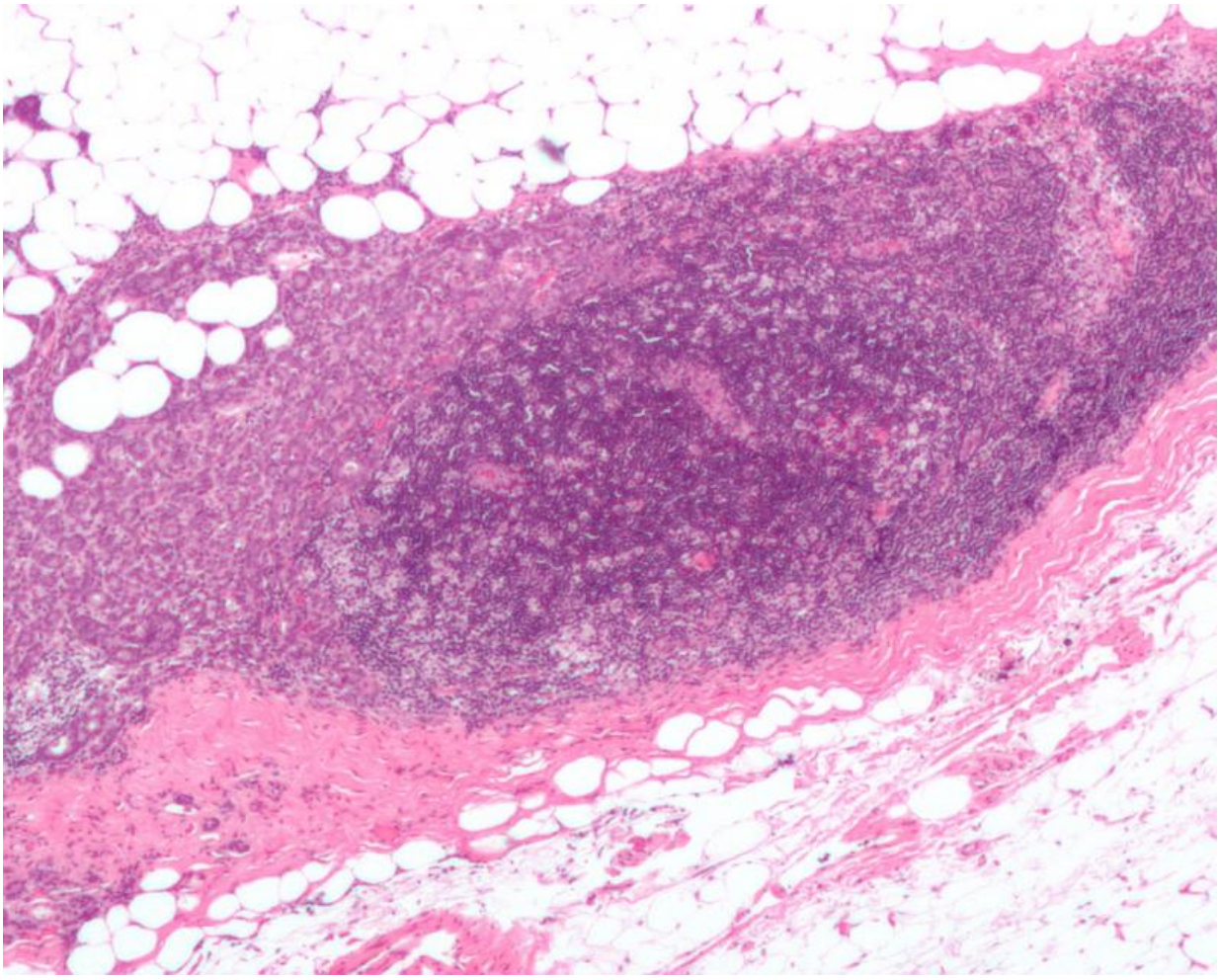

Micrograph showing a lymph node invaded by ductal breast carcinoma, with extension of the tumour beyond the lymph node. Credit: Nephron/Wikipedia

A new study examines how one early example of precision medicine—tumor genome testing—is being used in women with breast cancer to reduce overtreatment and maximize the benefits of chemotherapy. Published early online in *Cancer*, a peer-reviewed journal of the American Cancer Society, the study found that physician recommendations and final treatment decisions correlated highly with test results, suggesting genome testing helped physicians identify which patients could most benefit from chemotherapy, and those for whom chemotherapy could be safely omitted. Additionally, these personalized recommendations appeared to eliminate racial/ethnic and educational disparities in testing or treatment; however, many women who were tested inaccurately recalled their test results.

Most precision medicine studies in cancer have been confined to patients enrolled in clinical trials. Few have examined how physicians in everyday practice use biomarker tests to recommend chemotherapy or have assessed patient experiences with testing and decision-making. To investigate, Christopher Friese, PhD, RN, of the University of Michigan School of Nursing in Ann Arbor, and his colleagues surveyed 3880 women who were treated for breast cancer in 2013 and 2014 in Los Angeles County, CA or the state of Georgia.

A total of 1527 patients with early stage breast cancer responded to the survey, and 778 had received the 21-gene recurrence score assay (RS), which estimates the risk of disease recurrence and the estimated benefit of chemotherapy in estrogen receptor-positive breast cancer. Overall, 47.2% of patients with RS scores received a recommendation against chemotherapy and 40.6% received a recommendation for it. RS results correlated with recommendations: nearly all patients with high scores received a chemotherapy recommendation, whereas the majority of patients with low-risk results received a recommendation against it. Also, most patients with high RS received chemotherapy, whereas few patients with low scores received it. There were no substantial racial/ethnic

differences in testing and treatment. Also, women were largely satisfied with RS and chemotherapy decisions.

"We found that most doctors were using tumor genomic tests in ways that were recommended by professional guidelines, although we found that some patients were having the test where there is no professional recommendation for the test," said Dr. Friese. "For example, about 13 percent of women whose lymph nodes were positive for breast cancer had tumor genomic testing, even though currently it is still under study whether women with positive lymph nodes will benefit from testing and resulting recommendations."

Dr. Friese also noted that although most women were highly satisfied with their experience, only 60 percent of tested women accurately recalled their test results. "This suggests that while precision medicine for breast cancer has left the station, we have also left some women behind. The oncology community needs to do a better job explaining to women the purpose of these tests, how to interpret the results, and what the results mean for their breast cancer treatment."

More information: "Chemotherapy Decisions and Patient Experience with the Recurrence Score Assay for Early-Stage Breast Cancer." Christopher R. Friese, Yun Li, Irina Bondarenko, Timothy Hofer, Kevin C. Ward, Ann S. Hamilton, Dennis Deapen, Allison W. Kurian, and Steven J. Katz. *Cancer*; Published Online: October 24, 2016, DOI: 10.1002/cncr.30324