

Study finds triple-negative breast cancer tumors with increased immune cells have lower risk of recurrence after surgery

April 2 2024



Credit: Unsplash/CC0 Public Domain

A new multicenter, international study suggests that people who have early-stage triple-negative breast cancer (TNBC) and high levels of

immune cells within their tumors may have a lower risk of recurrence and better survival rates even when not treated with chemotherapy. The study was published in the *Journal of the American Medical Association (JAMA)*.

TNBC is a breast cancer subtype that does not respond to drugs that target the estrogen receptor or the HER2 protein. It grows rapidly, is more likely to spread beyond the breast before diagnosis and is more likely to recur than other breast cancers.

TNBC represents about 15% of all breast cancers and is more common in [younger people](#) and in women of African American, Hispanic and Indian descent. Immune cells, also known as tumor-infiltrating lymphocytes, or TILs, are naturally existing immune system cells that can move from the bloodstream into a tumor and can recognize and destroy cancer cells.

"This is an important finding because it highlights that the abundance of TILs in [breast tissue](#) is a prognostic biomarker in people with early-stage triple-negative breast cancer, even when chemotherapy is not administered," says Roberto Leon-Ferre, M.D., a breast medical oncologist at Mayo Clinic Comprehensive Cancer Center and first author of the study.

"The study's findings may inspire future clinical trials to explore whether patients with a favorable prognosis (high TILs) can avoid intensive chemotherapy regimens."

"This [meta-analysis](#) confirms robustly the prognostic value of TILs that we have previously reported in TNBC patients treated with chemotherapy and expands it to patients treated without chemotherapy," says Sarah Flora Jonas, Ph.D., a statistician at Gustave Roussy and co-first author of the study.

"Future studies may allow the use of this biomarker along with standard clinicopathological factors to inform treatment decisions in TNBC patients."

"Of interest, the first report suggesting that an increased number of immune cells being associated with better prognosis in [breast cancer patients](#) was described by doctors at Mayo Clinic more than 100 years ago," says Roberto Salgado, M.D., co-chair of the International Immuno-Oncology Biomarker Working Group and co-lead of the study.

"It took a global effort and a century later to reexamine this biomarker and bring it closer to application in patient care."

"TILs are not currently measured or reported in the routine examination of tissue samples of breast cancer," says co-senior author, Matthew Goetz, M.D., a medical oncologist at Mayo Clinic Comprehensive Cancer Center and the Erivan K. Haub Family Professor of Cancer Research Honoring Richard F. Emslander, M.D.

"While prior studies have focused on measuring TILs in people treated with chemotherapy, this is the largest study to comprehensively demonstrate that the presence of TILs influences the natural behavior of breast cancer in people who have surgery and/or radiation with no additional medical treatment."

For this study, Mayo Clinic and Gustave Roussy researchers, in collaboration with the International Immuno-Oncology Biomarker Working Group, led 11 additional groups to collect data on 1,966 participants with early-stage TNBC who only underwent surgery with or without radiation therapy but did not receive chemotherapy. The participants had been followed for a median of 18 years.

The results showed that higher levels of TILs in breast cancer tissue were

associated with lower recurrence rates among participants with early-stage TNBC.

"Five years after surgery, 95% of participants with small tumors, stage 1 TNBC, and whose tumors had high TILs were alive, compared to 82% of patients whose tumors had low TILs. Importantly, the breast cancer recurrence rate was significantly lower among patients whose tumors had high TILs," says co-senior author, Stefan Michiels, Ph.D., head of Oncostat team, Gustave Roussy, Inserm U1018, University Paris-Saclay.

"With nearly 2,000 participants involved in the study, we have now assembled the largest international cohort across three continents of people with TNBC in which the primary treatment was surgery without chemotherapy."

"The results of this study could lead to a recommendation to include TILs in the pathology reports of early-stage TNBC worldwide, as it has the potential to inform clinicians and patients when they discuss treatment options," says Dr. Salgado.

Furthermore, this biomarker would only require a visual evaluation by a pathologist looking through a microscope, meaning there are no additional costs associated with identifying the presence of [immune cells](#). This could be particularly beneficial to regions with limited resources, adds Dr. Leon-Ferre.

Most people with early-stage TNBC undergo chemotherapy either before or after surgery, including people with stage 1 breast cancer. Most people receive multiple chemotherapy drugs in combination, which can cause significant side effects.

Currently, the main factors taken into consideration to determine the course of chemotherapy treatment for each person are the tumor size

and the presence of lymph node metastases. However, the authors identified that the number of TILs further influences the risk of future recurrence.

The researchers plan to evaluate TILs as biomarkers in prospective clinical trials evaluating [chemotherapy](#) selection based on TIL levels. Ongoing efforts to conduct additional research with other potential biomarkers are underway.

More information: Roberto Leon-Ferre et al, *JAMA* (2024).

Provided by Mayo Clinic

Citation: Study finds triple-negative breast cancer tumors with increased immune cells have lower risk of recurrence after surgery (2024, April 2) retrieved 2 May 2024 from <https://medicalxpress.com/news/2024-04-triple-negative-breast-cancer-tumors.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.