

Blood Test Could Guide Use of Anti-Inflammatory Drug to Reduce Risk of Colon Cancer Recurrence

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A data analysis from a randomized clinical trial for stage 3 colon cancer patients by investigators at Dana-Farber Brigham Cancer Center found that patients with evidence of residual cancer in their blood after surgery to remove the cancer, may benefit from adding of celecoxib (Celebrex), to post surgery treatment. The analysis showed that patients with positive blood tests for circulating tumor DNA (ctDNA) had worse outcomes in general, but those who were treated with celecoxib, a non-steroidal anti-inflammatory drug, experienced significantly improved disease-free survival.

“This is one of the first studies to show that ctDNA status has predictive utility in terms of selecting patients that respond better to a drug,” says Jonathan Nowak, MD, PhD, a pathologist at Dana-Farber Cancer Institute and Brigham and Women’s Hospital who presents the study at the American Society of Clinical Oncology Gastrointestinal Cancers Symposium on Jan. 25, 2025, in San Francisco, Calif.

“These results add to our earlier [findings](#) that celecoxib improves survival for PIK3CA mutated colon cancer,” says [Jeffrey Meyerhardt, MD, MPH](#), senior author and co-director of the [Colon and Rectal Cancer Center at Dana-Farber Cancer Institute](#). “These findings will help develop a personalized approach to additional therapy for patients with early-stage colon cancer.”

Patients with stage 3 colon cancer are initially treated with surgery to remove the cancer in the colon and nearby lymph nodes. After this treatment, they typically receive adjuvant chemotherapy intended to reduce their risk of the cancer coming back. In a subset of these patients, however, the cancer returns, potentially rendering them incurable. A key research focus at Dana-Farber is finding ways to improve adjuvant therapies and stave off recurrence.

To investigate the use of celecoxib on disease-free survival in patients with stage 3 colon cancer, Meyerhardt and colleagues initiated a randomized clinical trial, the CALGB (Alliance)/SWOG 80702 trial, in 2010 with the Alliance for Clinical Trial in Oncology and the National Cancer Institute. The trial enrolled 2,526 patients between 2010 and 2015. After treatment, patients were randomized to receive adjuvant chemotherapy with fluorouracil, leucovorin, and oxaliplatin (FOLFOX) for three or six months with or without daily celecoxib for three years. Those taking celecoxib showed a moderate benefit, but [the results](#), which were published in 2021, were not statistically significant.

Evidence has since emerged suggesting that anti-inflammatory drugs might benefit some patients with colon cancer, but not others. One possibility for this is that patients who have a blood test soon after surgery showing evidence of ctDNA have a higher risk to relapse and may benefit from additional therapies beyond standard chemotherapy. In this new study, investigators wanted to explore whether anti-inflammatory drugs might help stave off relapse in patients whose ctDNA test was positive soon after surgery.

When the original prospective celecoxib clinical trial was designed a decade ago, patients were assessed before and after surgery using imaging, which reveals where cancer cells have clustered, but has limited resolution. The ctDNA tests available today provide a more sensitive read on whether cancer remains after surgery by detecting microscopic fragments of tumor DNA in the blood.

The study team identified 1,011 of 2,526 patients who had participated in the original trial and had agreed to have blood drawn for research purposes that was available for analysis. They performed ctDNA tests on blood samples taken after surgery. This analysis revealed that patients with positive ctDNA generally had worse outcomes. However, those with positive ctDNA tests who had been prescribed celecoxib in addition to standard chemotherapy had significantly improved disease-free survival compared to those who received only standard chemotherapy. For those who had negative ctDNA tests, there was no significant difference between those taking celecoxib versus placebo.

“Based on this analysis, the benefits of celecoxib with chemotherapy look promising for early-stage colon cancer patients with positive ctDNA after primary treatment,” say the investigators. “This evidence plus results from other ongoing studies will help determine which patients may benefit from celecoxib in addition to other standard treatments.”

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