Liquid Biopsy Could Detect Recurrence Prior to Scans in People with Colorectal Cancer

Detection of circulating tumor DNA after treatment is a strong indicator of colorectal cancer relapse.

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A Liquid Biopsy-based Assay Could Detect Recurrence Prior to Imaging in Patients With Resectable Colorectal Cancer

An ultrasensitive circulating tumor DNA (ctDNA)-based liquid biopsy assay detected signs of recurrence prior to imaging and provided prognostic value within one month after surgery in patients with colorectal cancer (CRC), according to interim results from the VICTORI study presented at the American Association for Cancer Research (AACR) Annual Meeting 2025, held April 25-30.

Detection of ctDNA after treatment is a strong indicator of recurrence in CRC, but it often goes undetected because traces of ctDNA in the blood can be very low, said Emma Titmuss, MSc, a bioinformatician at BC Cancer in Vancouver and the study presenter. If captured early enough, blood-based biomarkers could provide valuable information that can be incorporated into clinical decision-making, she explained.

“After surgery, ctDNA-based liquid biopsies may help identify patients who would benefit most from additional treatment,” said Jonathan Loree, MD, MS, a medical oncologist at BC Cancer and the senior investigator of the study. “Alternatively, this may help patients with good prognosis avoid toxicities from unnecessary chemotherapy. By monitoring patients for recurrences, liquid biopsies can continue to support clinical care and allow more patients to undergo second curative intent surgeries to remove early recurrences.”

The VICTORI study aims to identify the optimal timepoint at which detecting ctDNA can predict recurrence following surgery in patients with CRC. This interim prospective analysis included 71 patients with resectable CRC, 52 with stage 1-3 disease and 19 with stage 4 disease.

The investigators created a personalized, tumor tissue-derived panel of up to 1,800 somatic

variants for each patient. Liquid biopsies were taken prior to surgery, every two weeks for eight weeks post-surgery, and every three months for a potential three years, and analyzed with the NeXT Personal assay.

All 33 patients with treatment-naive disease greater than stage 1 had detectable ctDNA prior to surgery.

Of 65 patients evaluable for clinical outcome, 23 experienced clinical recurrence, the vast majority (87%) were ctDNA-positive within the landmark eight-week post-surgical period during which adjuvant chemotherapy is typically administered. All patients with clinical recurrence were ctDNA-positive before recurrence was detected via reflex imaging, by a median of 198 days earlier, including difficult-to-detect metastatic sites such as the lung. One patient had ctDNA recurrence 416 days prior to clinical recurrence. According to Titmuss, ctDNA was detected as low as 2 parts per million (ppm). The median ctDNA level at first detection was 24.4 ppm, and the highest was 111,120 ppm. Higher ctDNA levels at first detection were linked to shorter times to clinical relapse.

“The results from our study help to clarify the ideal timepoint for ctDNA testing following a surgical procedure, showing that we can detect residual cancer as early as two weeks following surgery,” said Titmuss. However, with ctDNA assessments this close to surgery, there is the potential for normal cell-free DNA to dilute ctDNA, and four weeks appears to be a better time point clinically to sample for ctDNA to inform clinical decision-making, she added.

The study continues to enroll more patients, which the authors hope will improve the precision of the results and guide future prospective studies that incorporate ctDNA as a decision point for clinical management and care.

One limitation of the study is the lack of intervention after ctDNA detection as this was an observational study. The authors note the need for randomized trials to determine the most effective use of this technology in clinical management.

The study was funded by Personalis, Inc. and BC Cancer Foundation. Titmuss declares no conflict of interest. Loree has served as a consultant for Amgen, Pfizer, Guardant Health, SAGA Diagnostics, Merck, Ipsen, and Novartis. Loree has also received research funding or in-kind support from Ipsen, Guardant Health, SAGA Diagnostics, Bayer, and Personalis, Inc.

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