Largest study of its kind finds common lab tests aren't reliable for diagnosing long COVID

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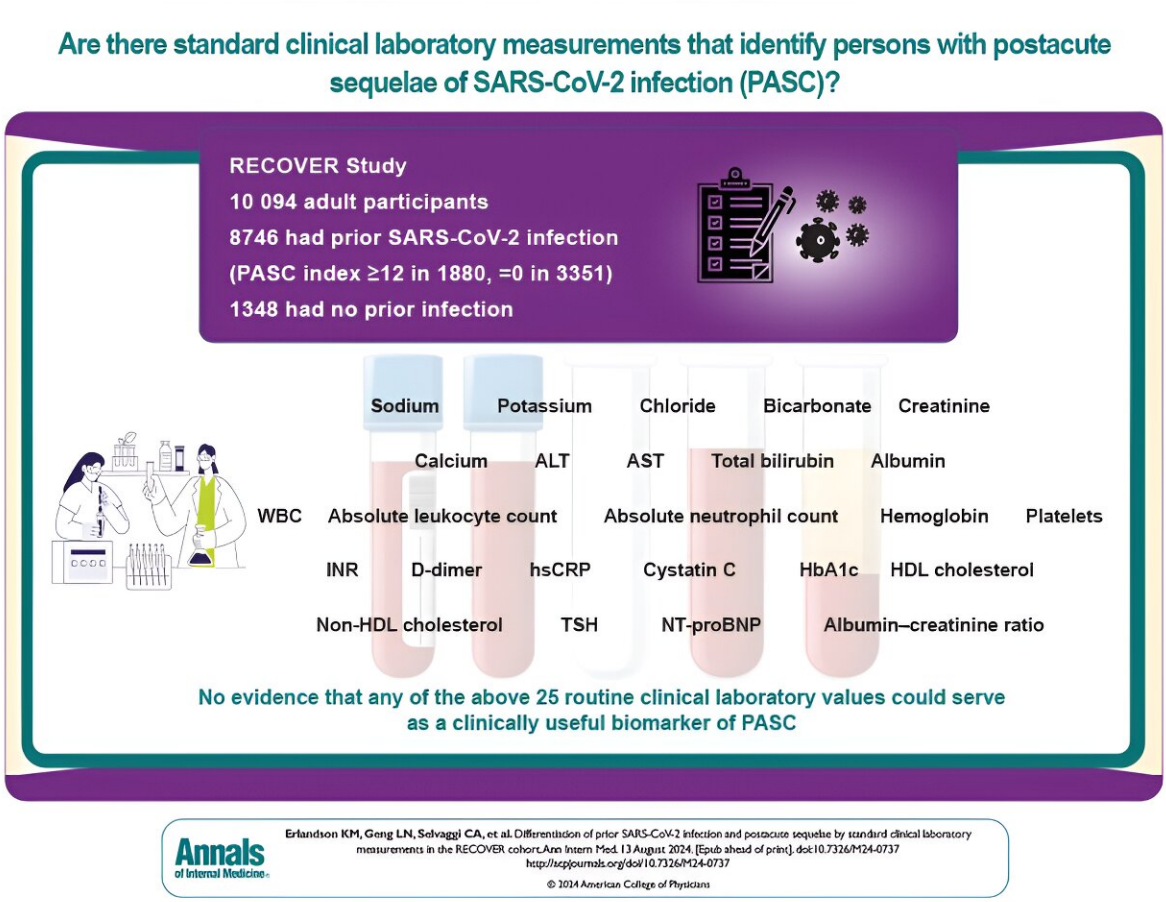

Visual abstract. Differentiation of Prior SARS-CoV-2 Infection and Postacute Sequelae by Standard Clinical Laboratory Measurements in the RECOVER Cohort. Credit: *Annals of Internal Medicine* (2024). DOI: 10.7326/M24-0737

A new study found that most routine laboratory tests are not reliable for diagnosing long COVID, also known as Post-Acute Sequelae of SARS-CoV-2 infection (PASC).

The study, published in Annals of Internal Medicine, found no reliable biomarker among 25 routine clinical laboratory values for prior infection, PASC or specific types of PASC clusters. This suggests none of these routine labs can serve as a clinically useful biomarker of PASC.

"Our study shows patients can have severe Long COVID with normal lab results. This suggests doctors should not focus on the results of blood panels to diagnose Long COVID but should focus more on symptoms and ways to help patients get relief by treating their symptoms," said the study's first author, Kristine Erlandson, MD, a professor in the Division of Infectious Diseases at the University of Colorado Anschutz Medical Campus.

According to the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey, 7% of all adults in the U.S., nearly 18 million people currently have long COVID.

"Our challenge is to discover biomarkers that can help us quickly and accurately diagnose long COVID to ensure people struggling with this disease receive the most appropriate care as soon as possible," said David Goff, MD, Ph.D., director for the Division of Cardiovascular Sciences at the NIH's National Heart, Lung, and Blood Institute.

"Long COVID symptoms can prevent someone from returning to work or school, and may even make everyday tasks a burden, so the ability for rapid diagnosis is key."

This study is part of the "Researching COVID to Enhance Recovery (RECOVER) Initiative." The RECOVER initiative includes multiple

research studies that involve thousands of participants from across the country. In Colorado, these studies take place in the Colorado Clinical and Translational Sciences Institute (CCTSI) at CU Anschutz.

To investigate clinical laboratory markers of SARS-CoV-2 and PASC, the researchers examined data from nearly 10,000 adults with and without SARS-CoV-2 infection. The researchers recruited from over 80 enrolling sites across 33 U.S. states plus Washington, DC and Puerto Rico, making it one of the largest and most diverse studies of its kind.

The study compared results in several ways: between participants with and without prior SARS-CoV-2 infection at six months after infection, between participants with and without PASC and between participants with each of the four most common PASC symptom phenotypes and those unlikely to have PASC.

They found participants with prior SARS-CoV-2 infection showed modest increases in HbA1c (a marker of long-term blood sugar levels) and urinary albumin-to-creatinine ratio (uACR), along with small decreases in platelet counts.

"While these differences are statistically significant, these associations are generally small and not reliable enough to serve as diagnostic biomarkers for PASC," Erlandson says.

The researchers suggest this data shows the complexity of PASC as a condition that may involve multiple physiological pathways beyond simple laboratory markers, such as those for inflammation, anemia or other markers.

"Long COVID has been very elusive; numerous possible symptoms, no definite cause and no clear treatment. We hear from patients that their concerns are dismissed by providers because their lab tests are normal,"

Grace McComsey, MD, senior author of the paper, professor and vice dean of clinical and translational research at Case Western Reserve University.

"In this study, even the exhaustive list of routine blood tests could not help in making a PASC diagnosis. This is an important observation in PASC research as prior smaller studies showed inconsistent abnormalities in some blood tests. Until a reliable biomarker is found, the best diagnostic modality for PASC remains the old-fashioned history taking and clinical assessment."

The researchers also note that it's still important to do routine laboratory tests to rule out other conditions during the process of diagnosing PASC.

More information: Kristine M. Erlandson et al, Differentiation of Prior SARS-CoV-2 Infection and Postacute Sequelae by Standard Clinical Laboratory Measurements in the RECOVER Cohort, *Annals of Internal Medicine* (2024). DOI: 10.7326/M24-0737

Annukka A.R. Antar et al, Long COVID Diagnostics: An Unconquered Challenge, *Annals of Internal Medicine* (2024). DOI: 10.7326/M24-0892

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