

Researchers take a closer look at what COVID-19 does to the heart

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People hospitalized with COVID-19 may have an increased risk for

heart damage, but not so much the type of inflammation previous research suggested, according to a new study.

Early in the pandemic, several studies suggested many COVID-19 survivors experienced [heart](#) damage even if they didn't have underlying heart disease and weren't sick enough to be hospitalized. The new study, published Friday in the American Heart Association journal *Circulation*, examined the nature and extent of the heart damage and inflammation in the sickest people with COVID-19.

Researchers looked at 342 COVID-19 patients with high levels of the protein troponin in 25 United Kingdom hospitals between June 2020 and March 2021. Elevated levels of troponin in blood tests are a strong indicator of acute heart muscle injury or [heart attack](#). Doctors routinely check troponin levels in people hospitalized for COVID-19.

Participants were compared with two control groups, one with 64 people hospitalized with COVID-19 who had normal troponin levels, and a second group of 113 people of a similar age, sex and cardiovascular health but without COVID-19 or elevated troponin levels who had not been in the hospital. All [hospitalized patients](#) had a magnetic resonance imaging scan within 28 days of discharge. Non-hospitalized participants also received an MRI.

The study found that 61% of people hospitalized with COVID-19 who had high troponin levels had heart abnormalities including scarring from myocardial infarction, also known as a heart attack, or from microinfarction, which the study's lead author, John Greenwood, called "small areas of scar." That was almost twice as high as hospitalized COVID-19 participants with normal troponin (36%) and those without COVID-19 who had normal troponin (31%).

But when it came to suspected myocarditis, a rare and sometimes fatal

heart muscle inflammation typically triggered by a viral infection, researchers found the prevalence was 6.7% in participants with COVID-19 and elevated troponin, compared to 1.7% in those without. That's much lower than seen in previous studies, according to Greenwood, a cardiology professor at Leeds Institute for Cardiovascular and Diabetes Research in England and a cardiologist at Leeds Teaching Hospitals NHS Trust.

"Several smaller past studies raised a lot of concern about myocarditis. But this more rigorous national study of hospitalized patients with troponin elevation shows clearly that this isn't predominantly a condition of a viral myocarditis, but more of a condition of infarction and microinfarction," he said. "This is really important information for clinicians who have the challenge of trying to understand why [troponin](#) levels are elevated so they can tailor the appropriate treatment options."

Greenwood said the study was limited by a lack of data about [cardiac events](#) before participants were hospitalized and by "survivor bias," since the research focused only on patients who survived to hospital discharge. Greenwood and his colleagues plan to do more studies on this group by repeating the MRI scans at six months.

Dr. Tim Duong, a professor of radiology at Albert Einstein College of Medicine and Montefiore Medical Center in New York City who was not involved in the research, noted that the study began before COVID-19 vaccines were available. Since the first COVID-19 vaccines became available in the U.S. in December 2020, hundreds of millions of doses have been administered nationwide, according to the Centers for Disease Control and Prevention.

"Vaccines would generally reduce the disease severity and reduce the abnormal imaging findings reported in this study," Duong said.

The CDC recommends everyone 6 months and older stay up to date with COVID vaccines for their age group.

"This is the first large, multi-hospital cardiac MRI study on the effects of COVID on the heart," Duong said. "These important findings will raise awareness to better monitor COVID patients at risk of cardiac injury and enable timely treatment, if needed, to prevent further cardiac issues."

He called for long-term studies to better understand the impact that "long COVID" might have on the heart and other organs.

"Tens of millions of people have gotten sick from COVID, and we think it's causing multi-organ damage. But at this point, nobody really knows what the long-term effects are," Duong said. "We need research that follows patients for years down the line so we can anticipate problems and treat them as early as possible."

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