

What are the Long-Term Effects of COVID-19?

For many who contract the novel coronavirus, the manifestations of the disease tend to be mild and moderate, with improvement in a couple of weeks. But for those who recover from COVID-19 after intubation and a long hospital stay, the long term symptoms may last long after they are discharged.

COVID-19 is showing itself to be much more than respiratory disease. It can affect organs beyond the lungs — from the skin to the kidneys — potentially creating long-term health issues.

“It can take patients months to feel to where they once were,” says Roger A. Alvarez, D.O., a pulmonologist at the University of Miami Health System. “But it’s too early to tell if what we’re seeing will turn out to be permanent damage.”

What’s more, the scientific world isn’t even sure what kind of immunity a patient may build up after contracting the disease. It could lie dormant in the body, like chickenpox, or become a chronic infection, like hepatitis B. Under the rosiest scenario, COVID-19 may behave like other coronaviruses, a one-and-done acute illness.

As the virus spreads across the country, scientists are grappling with a worrisome dilemma: Will patients who suffered the most severe symptoms recover fully, even if it takes several months, or will the damage to their organs be permanent?

Though much remains a mystery, this is what we do know about the post-COVID-19 recovery of the sickest patients:

Lungs:

While the virus can camp out in different parts of the body, it prefers to attack the lungs first and foremost. Dr. Alvarez calls the entire respiratory system “the portal of entry” for the virus. Autopsies of COVID-19 patients show that the lungs of deceased patients are often rendered unrecognizable, with the virus destroying the “lung architecture.” This kind of destructive impact has caused problems for those who survive. The most notable example is the young woman who received a double lung transplant in Chicago after being on a ventilator for two months.

Typically, COVID-19 affects the lungs by causing pneumonia or, in the worst cases, acute respiratory distress syndrome, or ARDS, Dr. Alvarez says. With pneumonia, patients can have trouble breathing as the lungs fill with fluid and become inflamed. This can be severe enough to require oxygen or a ventilator. COVID-19-related pneumonia appears to infect both lungs, which makes it even more dangerous.

ARDS develops when fluid leaks from lung blood vessels into air sacs. This, in turn, can lead to lung failure because patients can’t breathe on their own. ARDS can be fatal, and those who do survive tend to have permanent lung damage.

While the scientific community doesn’t yet have enough follow-up information on COVID-19 lung damage per se, Dr. Alvarez says pulmonologists are guided by the models of post-ICU pneumonia patients. He suspects that CT scans will show lung scarring in the future, but how serious will probably vary. Even without ARDS, “we do know that patients will continue to feel very fatigued and have shortness of breath for a while,” he adds. “It’s very important that patients continue to receive care from a pulmonologist or primary care doctor.”

In such cases, he recommends pulmonary rehabilitation, a medically supervised program of exercise, breathing techniques, and health education.

Heart and Cardiovascular:

COVID-19 is considered a respiratory disease, but cardiologists have noted it can also damage the heart. Robert Myerburg, M.D., a cardiac electrophysiologist at UHealth, says that some viral infections may affect the heart long-term as a result of leaving behind some of their viral DNA, potentially causing continuing heart damage. This is different than the acute or chronically-active viral damage associated with inflammation. But “right now, so early [in the pandemic], there’s a lot we don’t know about this virus, and there’s limited meaningful information in the literature. We’re still asking: How bad is it, and how will it move forward?”

Dr. Myerburg believes many COVID-19 related cardiac problems are “secondary” to pulmonary issues, but the effects are nevertheless serious on our tickers and cardiovascular system, resulting in a variety of conditions, from heart failure to heart rhythm problems to clotting. There is also some emerging evidence regarding direct coronavirus infections in the heart. To meet the needs of patients with cardiac problems secondary to pulmonary involvement, as well as those with direct cardiac infection due to coronavirus, UHealth has launched the COVID-19 Heart Program.

UHealth cardiologists estimate that about a third of their coronavirus patients develop myocarditis, an inflammation of the heart muscle that reduces the organ’s ability to pump blood. In addition to arrhythmias, a patient can suffer from chest pain, shortness of breath, and fatigue.

Doctors are also noting cases of abnormal clotting, including those in large vessels such as deep vein thrombosis in the legs and lungs, and smaller clots in smaller vessels in multiple organs. A clot can cause strokes, lung blockages, and heart attacks, sometimes resulting in death. Most worrisome? This unusual clotting is happening even while patients are on blood thinners. Still, much work needs to be done to understand if cardiovascular problems will disappear or continue.

“The follow up of these patients over a period of time is what we have to look at,” Dr. Myerburg concludes. “Right now, we’re playing catch up.”

One final point is that patients who have coronavirus infection are still susceptible to the common diseases affecting the heart, such as plaque formation in the arteries to the heart. Therefore, patients should not ignore the common symptoms of coronary artery disease out of concern about or focus on, COVID-19.

“We don’t want to miss symptoms of a treatable heart attack.”

Kidneys:

Early reports suggest that up to 30% of hospitalized coronavirus patients develop moderate to severe kidney injury. Many of them already suffered from conditions, such as diabetes and high blood pressure, that make them more susceptible to kidney disease.

“But even in the absence of underlying kidney disease patients with severe COVID-19 may develop acute kidney failure and require dialysis,” says Oliver Lenz, M.D., a nephrologist at UHealth.

There are many ways the virus can cause kidney damage. The virus may infect kidney cells and damage them directly, or the damage could result from having too little oxygen. Also, blood clots may form in the tiny vessels inside the kidney, or cytokines can damage the organ. “Some people, mainly those requiring admission to an intensive care unit, require dialysis,” Dr. Lenz states, “and we do not know how many will regain kidney function.”

Although there is “much we don’t know yet” about the virus, nephrologists do understand the devastating consequences of kidney damage. “We do know that patients with a critical illness who develop kidney failure in the hospital live shorter

lives and have a higher chance of developing chronic kidney disease, strokes, and heart attacks,” Dr. Lenz points out. “So, kidney disease is a serious issue in patients with COVID-19.”

Digestive tract:

COVID-19 sometimes presents with abdominal pain and diarrhea as well as nausea and vomiting and loss of appetite. In one study, GI issues were not nearly as common as respiratory and heart symptoms, but they appeared to last longer than expected, with 10% reporting they still had diarrhea for the three weeks in which they were followed. The study, however, was small and not peer-reviewed.

While there’s little data about long-lasting GI issues, doctors warn that patients with chronic digestive conditions, such as digestive cancers, inflammatory bowel disease (IBD), and liver diseases, might be more vulnerable to the coronavirus.

Brain and neurological system:

Just as COVID-19 damages other organs, scientists have discovered that the virus can also cause neurological symptoms, from brain fog to seizures to hallucinations to mental confusion. This could be a result of oxygen starvation to the brain cells or the aftermath of the cytokine storm when the body’s immune system overreacts to the virus.

Reports cite cases of Guillain-Barré syndrome, an affliction that can lead to temporary paralysis, as well as dizziness, headaches, temporary loss of smell and taste, agitation, and confusion. However, there is no data, whether such symptoms, tracked during the course of the disease, will prove to be permanent.

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