

# Most severe COVID-19 cases involve neuro issues, and they're more often fatal

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(HealthDay)—Neurological problems are occurring in a very high

percentage of hospitalized COVID-19 patients—and what's worse, those symptoms foretell a bad end for many sufferers, a new study finds.

About four out of five people sick enough to be hospitalized for COVID-19 suffer some sort of neurological problem, ranging from headache and a loss of sense of smell to confusion, delirium, stroke and coma, researchers report.

Even worse, COVID-19 patients who have diagnosed [neurological symptoms](#) associated with their infection are six times more likely to never leave the hospital.

"For those patients who have a neurological syndrome, they're much more likely to die during hospitalization than patients who don't," said lead researcher Dr. Sherry Chou. She is an associate professor of critical care medicine, neurology and neurosurgery at the University of Pittsburgh.

"We don't know why yet, but that's an important question we need to follow up on in subsequent studies," Chou said.

This study, involving over 3,700 hospitalized adults with COVID-19, is the largest to date of [neurological problems](#) associated with the coronavirus. Patients were included from 28 medical centers around the world, representing 13 countries on four continents.

Doctors diagnosed half of all COVID-19 patients with acute encephalopathy, Chou said, describing the condition as "people who aren't themselves, people who may be confused, delirious or agitated."

Chou said, "This is by far the most common syndrome that we saw. It happens in up to 50% in a cohort of patients where we counted every single patient who came into the hospital with COVID and checked them

to see if they have a problem."

About 17% of all patients fell into a coma, and between 3% and 6% suffered strokes during their COVID-19 infections, she noted.

The most common symptoms self-reported by patients included headache (37%) and loss of smell or taste (26%).

The findings were published online May 11 in *JAMA Network Open*.

According to Dr. Amesh Adalja, a senior scholar with the Johns Hopkins Center for Health Security, in Baltimore, "The study illustrates that any neurological symptom in a hospitalized COVID-19 patient is a marker for severity. Even something as innocuous as loss of taste or smell in a hospitalized patient was associated with an increased rate of death.

"The study underscores they need to be very vigilant with the development of neurological symptoms in hospitalized COVID patients," Adalja concluded.

There's some good news, Chou said. Encephalitis and meningitis (infections of the brain and spinal cord) were the least common neurological illnesses related to COVID-19, affecting half a percent of all patients.

"That was the one thing we were most worried about at the beginning of the pandemic, that the virus would somehow find its way into the brain and spinal cord and attack it and destroy it," Chou said. "Fortunately, that's very, very unlikely. That's the least common thing that we found."

Rather than attacking the nervous system directly, COVID-19 could be creating neurological problems through an intense immune response that the infection creates in some people, she explained.

"While your body is mounting an immune reaction to the virus itself, the bullet you make may misaim and fire and cause secondary damage to the brain, the [spinal cord](#) or your nerves," Chou said. "That is a distinct possibility here, but we still have to prove that."

It's also possible that COVID-19 exacerbates brain problems in people who are already vulnerable to neurological illnesses.

This study found that the risk of COVID-related neurological problems is more than doubled in people who have a pre-existing condition that involves the nervous system, Chou noted.

"We have a lot of patients like this who are coping and actually living with their pre-existing neurological disease, and it is possible if those patients get a severe infection and become severely ill, their body's ability to compensate for their existing injury to the nervous system is reduced and they can become more symptomatic," Chou said.

There's one other possibility—that the treatment people receive for severe COVID-19 causes at least some of these neurological problems.

"One well-known effect is if you have such severe lung disease that you need to be on a ventilator for a very long time and you need to be in the [intensive care unit] for a very long time, those patients can develop neurological problems," Chou said. "That's not unique to COVID. It's been seen in other severe lung diseases."

Because this study focused on hospitalized COVID-19 patients, it's hard to say whether the coronavirus' effect on the [nervous system](#) plays into "long hauler" symptoms like brain fog and tinnitus, Chou said.

However, she said it's a "distinct possibility" that neurological problems could cause "long-term symptoms and disability" among COVID-19

patients.

**More information:** Harvard Medical School has more about [COVID-19](#).

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