

## COVID-19 ICU patients have high risk of clots, research shows

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(HealthDay)—Hospitalized COVID-19 patients face an increased risk of developing dangerous blood clots, a new review indicates.

The odds of a [clot](#) are highest for the most critically ill patients. Analysis of 66 studies found that 23% of COVID-19 patients in an intensive care

unit (ICU) developed a [blood](#) clot in the leg, known as a deep vein thrombosis (DVT).

Overall prevalence of a DVT was 14% among ICU and non-ICU COVID-19 patients, and 8% among those with mild-to-moderate disease risk who were not admitted to the ICU.

The "numbers are surprisingly high when compared with other hospitalized patients," said study author Dr. Cihan Ay.

Of great concern are [blood clots](#) in the legs that can break away and travel to the lungs. This is a life-threatening condition known as pulmonary embolism (PE).

Nearly 4% of patients not admitted to the ICU developed a pulmonary embolism. And "we found a very high PE risk of 14% in patients treated at an [intensive care unit](#)," said Ay, an associate professor in hematology and hemostaseology at the Medical University of Vienna in Austria.

According to the American Heart Association, DVT and PE are each a form of venous thromboembolism, or VTE, as both refer to a blood clot that originates in a vein.

VTE is estimated to affect between 300,000 and 600,000 Americans every year, the AHA notes. It is most frequently triggered by surgery, cancer, hospitalization or long-term immobilization.

To examine VTE risk related to COVID-19, Ay and his colleagues analyzed the findings of 66 studies, involving roughly 28,000 COVID-19 patients.

On average, the COVID-19 patients were about 63 years old, and six in 10 were men. About one-fifth had been admitted to an ICU.

None of the studies looked at clotting risk among COVID-19 patients who had not received hospital treatment. So the findings do not speak to DVT or PE risk among such patients, said Ay, although "it seems that the risk of clots is low in patients with a mild clinical course of COVID-19."

Early in the pandemic, it became clear that blood clot risk seemed elevated in patients with COVID-19 compared to other diseases. To prevent clotting, "physicians worldwide intensified dosing of blood thinners for COVID-19 patients," Ay said.

This created another potential problem, however, since blood thinners increase the risk of bleeding.

The study authors hope their review will offer clinicians more insight into clotting risk profiles, offering guidance as to which patients truly need preventive clot treatment, Ay said.

As to why COVID-19 might drive up clotting risk in the first place, Ay said experts can only speculate based on available data.

"First, the clinical course in such patients is often severe, which by itself increases the thrombosis [clotting] risk," he said. "Second, researchers found that COVID-19 interacts with the blood clotting system and the blood vessels, which might explain the [increased risk](#) in those patients."

Dr. Gregg Fonarow is director of the University of California, Los Angeles Cardiomyopathy Center. He offered some additional specifics regarding that interaction.

"The virus SARS-CoV-2—which causes COVID-19—has been shown to directly invade the cells that line blood vessels, endothelial cells," he noted. "Endothelial injury can lead to venous thrombosis."

In addition, extended bed rest or the placement of venous catheters during treatment for COVID-19 can also increase the risk for venous thrombosis, Fonarow noted.

The study results were published online recently in *Research and Practice in Thrombosis and Haemostasis*.

**More information:** There's more on blood clots at the [American Heart Association](#).

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