

Coronavirus

The coronavirus turns deadly when it leads to ‘cytokine storm’; identifying this immune response is key to patient’s survival: report

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A medical staffer holds a kit for the test for Coronavirus outside one of the emergency structures that were set up to ease procedures outside the hospital of Brescia in northern Italy. (Claudio Furlan/LaPresse via AP) AP

By [Douglas Perry | The Oregonian/OregonLive](#)

Covid-19, the disease caused by the novel coronavirus that has swept across the globe, is not like a bad case of the flu.

For one thing, [a new study](#) indicates that Covid-19 triggers in some people something called a cytokine storm, where one's own immune system goes berserk. This "virus-activated" immune response can be deadly, causing severe respiratory distress and the subsequent shutdown of multiple organs.

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Indeed, how one's immune system reacts appears to be central to Covid-19's severity.

"The virus matters, but the host response matters at least as much, and probably more," University of Iowa virologist Stanley Perlman [told The Scientist magazine last month](#).

For some people whose immune systems are compromised by age or for often-subtle genetic or environmental reasons, the normal immune response doesn't retreat when it should. It goes into overdrive, leading to "a flood of immune cells into the lung." This has a rapid cascading effect in the body.

Key to the patient's survival is their doctors quickly recognizing this is happening. Dr. Randy Q. Cron and Dr. W. Winn Chatham, [in a report for Vox](#), wrote that --

All Covid-19 patients sick enough for hospitalization should be given a cheap, quick, and readily available serum ferritin blood test. Indeed, elevated serum ferritin values have recently been reported in Chinese hospitalized patients with Covid-19. This is a good first screening tool for the possibility of a cytokine storm syndrome in sick patients with high fevers.

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The question then remains how best to treat a cytokine storm syndrome once it is identified. The treating physician is often placed between a rock and a hard place. Corticosteroids can be powerfully broad immunosuppressive agents, and they are inexpensive and readily available throughout the world. However, it can be frightening for a physician to treat a severely ill, infected individual with such powerful and wide-ranging immune suppression.

Cron and Chatham pointed out that there are other, more targeted drugs available as well, though trials will be needed to figure out which ones work best for Covid-19.

In China, coronavirus patients exhibiting signs of cytokine-storm syndrome reportedly are being treated with [the anti-inflammation drug Actemra](#) (tocilizumab). Actemra is used in the U.S. for rheumatoid arthritis.

-- Douglas Perry

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