Coronavirus Treatments: Here's Where We Are Today

While much of the world focuses on a vaccine for COVID-19, scientists are also busy studying and developing potential treatments. The two-pronged approach has led to a better understanding of what works and what doesn’t, and why symptoms differ so widely from person to person.

“When we first started [treating the virus], there really was nothing and what we knew came from China,” recalls Dushyantha T. Jayaweera, M.D., an infectious disease specialist with the University of Miami Health System. “Nothing was proven, and we were trying a lot of different things. It was a little like throwing everything at it but the kitchen sink.”

But medicine has come a long way since spring.

We now have an antiviral drug that helps with the sickest patients. ICU clinicians use past experience and proven treatments for other severe lung infections to treat those in acute respiratory distress, one of the telltale (and fatal) results of COVID-19. Hundreds of clinical trials are being conducted around the country as well.

“We’ve come farther than most people would’ve expected,” says Hayley Beth Gershengorn, M.D., a pulmonologist and critical care specialist with the University of Miami Health System. “One of the key things is that we’ve changed for the better. We’ve moved away from just trying whatever we had to, actually studying and basing our decision on evidence-based medicine.”
There is no cure for COVID-19, and some are skeptical that a magic bullet will ever exist.

Blame this on the nature of viruses. Even for viral diseases that have plagued humans for centuries, there are no miracle cures in the vein of antibiotics. Antivirals on the market only work to a certain extent. Take Tamiflu. It doesn’t kill the flu virus, but it does shorten the duration of the illness. And treatment for hepatitis C and HIV requires a combination of two or three drugs to offset the way the viruses mutate.

That said, treatments are essential, even if a vaccine comes on the market.

So far, the U.S. Food and Drug Administration has not fully licensed any treatment, but two well-publicized examples — remdesivir and convalescent plasma — have been granted emergency authorization. Doctors are also using proven therapies that have worked for ICU patients, particularly those with severe pneumonia.

Unfortunately, “we don’t have anything to give at the early stage of the infection,” says Dr. Jayaweera, “and what we do have helps only some groups of patients. There are still so many unanswered questions. That’s why research, the systematic study of disease such as randomized clinical trials, is so important.”

The good news is that in-depth studies are currently underway. Scientists are researching old and new drugs that might lessen COVID-19’s severity by doing one of two things: treating the symptoms or targeting the virus itself. Interventions in the latter category either stop the virus from entering human cells or keep it from replicating.

“I think what we may see in the future is a combination [of drugs],” Dr. Gershengorn
says. “What we’ve been most successful in doing with other viral infections is mitigating the damage and treating the symptom while the virus is running its course.”

**A few existing COVID-19 treatments appear to work in some patients, according to physician-scientists:**

**REMDESVIR**

This antiviral drug continues to be used in experimental trials around the world. It targets the viral protein that copies the COVID-19 RNA and is used only in patients with the most severe symptoms. Originally developed to treat hepatitis C, it was tested against both the Ebola virus and the Marburg virus but eventually proved ineffective. In COVID-19, it seems to shorten recovery times.

**CONVALESCENT PLASMA**

Infusions of blood plasma from people who have recovered seem to be effective in helping seriously ill patients fight off the novel coronavirus. Plasma is rich in antibodies, or immunoglobulins. A nationwide study of 35,000 hospitalized COVID-19 patients found it improved mortality in the most severe cases if administered within days of diagnosis. However, the study did not have a placebo group, which means it’s unclear how valuable the data might be.
Under pressure from President Trump, the FDA granted emergency use for convalescent plasma in late August, and clinical trials continue. A go-to treatment during the Spanish Flu Pandemic of 1918, convalescent plasma transfusions have been around for more than a century. More recently, doctors used it to treat patients who contracted Ebola, SARS, and H1N1 flu. But it is critical to do a randomized control study to see if it works for COVID-19.

**PRONING**

Physicians are resorting less to ventilators and more to proning, the practice of lying a patient on their belly. This simple maneuver helps patients get more oxygen and also may avoid the need for devices to help people breathe. Although evidence for proning is limited in less severe illness, there is strong evidence that it improves survival in patients receiving mechanical ventilation for acute respiratory distress syndrome.

**DEXAMETHASONE**

As a steroid, this medication appears to effectively tamp down an immune response that’s gone haywire. Severely ill COVID-19 patients often experience a cytokine storm, when the body indiscriminately attacks bad viral cells and good healthy cells. The resulting damage allows fluid to build up in the lungs. Cytokine storms also happen with other viruses, in autoimmune diseases, bone marrow transplants, and people with a genetic disorder. While the British government gave immediate authorization for dexamethasone for seriously ill COVID-19 patients, the FDA has not issued a similar approval in the United States. However, it is part of U.S. treatment guidelines for patients on ventilators or needing other oxygen support.

Beyond the use of steroids to control this “storm,” researchers are looking at different immune-suppressants already on the market for rheumatoid arthritis and bone marrow diseases. However, this kind of treatment is tricky because the patient
still needs an active immune system to get rid of the virus.

**BLOOD FILTER**

The FDA granted emergency use authorization to a device that also seems to control cytokine storms. This blood filter serves as a sieve to strain out excess cytokines from the blood, in much the same way dialysis removes toxins. The purified blood is then pumped back into the body. While this filtration, called CytoSorb, appeared to work in a small group of patients in China and Europe, researchers have not conducted any randomized clinical trials with placebo to prove efficacy. What’s more, physicians are concerned it could filter out the good parts in blood too, including vitamins and minerals.

**BLOOD THINNERS**

In addition to lung damage, coronavirus patients suffer dangerous blood clotting in major organs. Physicians have reported an increase in strokes in adults under age 50 — patients who were generally healthy but had contracted COVID-19, some with mild or no symptoms. To prevent potential problems caused by clots, physicians often give COVID-19 patients anticoagulant therapy, including anti-clotting drugs. But no randomized study proves the efficacy.

While there are many other drugs and therapies — from new antivirals to stem cells to synthetically-produced antibodies – physicians temper their enthusiasm. With an insistence on facts, they hope that clinical trials will prove a treatment works.

“When we say something is promising, we’re saying it’s our experience at that moment,” says Dr. Jayaweera. “But unless it’s evidence-based, it’s only our observations. How much of what we’re trying now may prove not to work later?”
Ana Veciana-Suarez, Guest Columnist

Ana is a regular contributor to the University of Miami Health System. She is a renowned journalist and author who has worked at The Miami Herald, The Miami News, and The Palm Beach Post. Visit her website at anavecianasuarez.com or follow @AnaVeciana on Twitter.
Do some people have a natural protection from COVID-19?

Months into the coronavirus pandemic, most of us have heard stories about the wide variety of responses among COVID-19 stricken patients, even those living under the same roof. Does this mean some people have natural protection against the novel coronavirus? We might – just not in the way we think. Read more.