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Blood plasma may be effective against COVID-19 when used correctly

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Blood plasma collected from people who have recovered from COVID-19 works well as a treatment for those who develop serious symptoms from the virus, a study published Monday by JAMA Internal Medicine found.

To be most effective, however, the plasma, administered via transfusion, must be initiated early in the course of the disease, in hospitalized patients, before they require high levels of supplemental oxygen or become hypoxic, the researchers said.

It also appears to produce the best results in patients who have not been treated with remdesivir, an antiviral drug studied for use in COVID-19, or corticosteroids, which have been used to reduce multi-organ inflammation in those with severe illness.

"This is a therapy that was effective early in the pandemic when other therapies weren't available," study co-author Dr. Liise-anne Pirofski told UPI in a phone interview.

"Early treatment with convalescent plasma is a viable option and likely to be beneficial, particularly in older and less ill patients," said Pirofski, a professor of medicine, microbiology and immunology at Albert Einstein College of Medicine and Montefiore Medical Center in New York City.

Convalescent plasma, or blood plasma collected from people who have recovered from an illness, has been used to treat infectious diseases for more than a century, according to the Mayo Clinic.

The theory is that people who have survived a serious infection have built up antibodies — proteins produced by the immune system to fight of viruses and other pathogens — and that those antibodies are in their bloodstream.

By transfusing blood from recovered patients into those who are newly infected or ill, these antibodies can provide the immune system with a needed boost to fight off the virus.

In August last year, the Food and Drug Administration authorized the use of convalescent plasma to treat patients hospitalized with COVID-19.

Since then, the National Institutes of Health has included the treatment in its guidelines for the management of the virus, provided the collected plasma contains high levels of antibodies against it.

Studies have found that the approach is effective at resolving severe illness in some patients infected with the virus, although the NIH stopped a study of it earlier this year, citing a lack of clinical benefit.

For this study, Pirofski and her colleagues compared health outcomes in 463 hospitalized patients with COVID-19 treated with convalescent plasma to those of 463 who received a placebo, or sham transfusion that offers no clinical benefit.

Participants began treatment within seven days of first experiencing virus symptoms and within three days of hospital admission, the researchers said.

Those given convalescent plasma received one unit of the treatment, approximately 250 milliliters, or 8.5 ounces, within 24 hours of being enrolled in the study, at a rate of less than or equal to 500 ml. per hour.

Patients given plasma with high levels of COVID-19 antibodies were up to 70 percent more likely to meet the World Health Organization's criteria for clinical improvement within 28 days compared to those given the placebo, the data showed.

Just under 10 percent of the patients given plasma reported complications other than transfusion reactions, such as redness around the injection site, compared to 8 percent of those who received the placebo.

Examples of these complications include transfusion-transmitted infections, such as hepatitis, as well as allergic reactions or anaphylaxis, which a severe allergic reaction.

Based on these findings, convalescent plasma should be considered the first line of treatment for people with COVID-19 who are "sick enough to be admitted to the hospital," but whose symptoms have not progressed to the point where remdesivir or corticosteroids are needed, Pirofski said.

"That is the window when convalescent plasma is going to be most effective," she said.

Although plasma from people who recovered from the virus would need to be stockpiled, the approach is associated with fewer health complications than corticosteroids, which suppress the immune system, and is less expensive than the drug remdesivir, Pirofski said.

Hospitals collect, store and use plasma "every day," and it lasts for up to one year after collection, she said.

"The only difference here is that the plasma would have to be collected from people who have recovered from COVID-19, but it still readily available and could be more so with a commitment to collect and stockpile it," Pirofski said.

"The safety profile is absolutely superlative and that, in combination with the efficacy data, makes collecting plasma a worthwhile investment," she said.