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Massive WHO remdesivir study suggests no Covid-19 benefit. Doctors aren't so sure.

By Erika Edwards

5-6 minutes

A huge, global study of potential medications to treat Covid-19 suggests remdesivir — one of the few available drugs for the virus — may offer no real benefit to the sickest patients. But doctors on the front lines of treating severe cases advise caution when interpreting the findings.

"We already knew that in sicker populations, it didn't really change outcomes," said Dr. Ken Lyn-Kew, a pulmonologist in the critical care section at National Jewish Health in Denver.

That does not mean remdesivir — which was [granted an emergency use authorization](#) by the Food and Drug Administration in May — is not useful against Covid-19, however.

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The new study — which included data from more than 11,200 people in 30 countries — is the result of the World Health Organization's [Solidarity trial](#). It was published online Thursday on the preprint server [medRxiv](#), meaning it has not been peer-reviewed.



Remdesivir wasn't the only treatment given to patients in the trial. Some received hydroxychloroquine (which has since been shown to be [ineffective in treating Covid-19](#)), lopinavir (an antiviral used in HIV treatment) and interferon (another antiviral). Some received a combination of the drugs. Others got just one. Still others received no treatment.

The trial found that overall, remdesivir did not reduce deaths and did not help patients with severe Covid-19 get out of the hospital more quickly.

The latter finding contradicts a [large National Institutes of Health-funded trial](#) on the drug, which found that remdesivir reduced the amount of time it took for adults hospitalized with Covid-19 to be discharged from hospital.

Dr. Andre Kalil, a principal investigator for the NIH trial at the University of Nebraska Medical Center in Omaha, said the Solidarity trial lacked some of the basics critical to scientific research: "No data monitoring, no placebo, no double-blinding, no diagnostic confirmation of infection."

"Poor-quality study design cannot be fixed by a large sample size, no matter how large it is," Kalil told NBC News.

Outside experts also said it's no surprise that the drug didn't appear to benefit the sickest patients. Remdesivir is an antiviral medication. Like Tamiflu for influenza, antivirals generally are more effective when given early in the course of illness.

"We knew that in sicker populations, it didn't really change outcomes," Lyn-Kew said. "This study just reinforces that [it's not a miracle drug](#)."

One potential stumbling block to early treatment with remdesivir is that it's administered intravenously. It cannot be prescribed in pill form for newly diagnosed patients to take at home. However, Gilead Sciences, which makes remdesivir, has begun to study the effect of an inhaled version of the drug. If safe and effective, it could be used at home, before the body's inflammatory process takes over.

That inflammatory process, rather than the acute viral infection, is responsible for the more severe consequences of Covid-19. In theory, once that inflammation has taken over, an antiviral drug to reduce the amount of virus in the body would be minimally effective, at best.

"It's reasonable to expect that an antiviral has diminishing returns," said Cameron Wolfe, an infectious diseases expert and an associate professor of medicine at Duke University School of Medicine. People infected with Covid-19 generally go through an initial phase of infectivity that could be impacted by an antiviral.

"The second phase is much more hyper-inflammatory," Wolfe said. "It's probably not surprising that if you're in the midst of that newly inflamed secondary phase, an antiviral drug would have less impact."

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Wolfe also expressed frustration that the WHO released the findings as a preprint, as opposed to a peer-reviewed study.

A preprint "was probably OK in January or February when we really had a public health emergency and wanted to disseminate critical information quickly," he said, adding, "We're moving to a space now in which changing standard of care by press release is a really dangerous precedent."

"The highest-quality data that we have published anywhere still says that remdesivir is effective," Wolfe said.

"I'll hang my hat on that data every time."

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