Testing remdesivir as a potential treatment for COVID-19

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Rush University Medical Center is participating in a new clinical trial to test the effectiveness of the drug remdesivir in the treatment of coronavirus disease 2019 (COVID-19). This disease currently has no approved treatment.

Remdesivir is a novel antiviral drug that has shown promise in animal models for treating Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS1), which are caused by other coronaviruses. SARS-CoV-2, the virus that causes COVID-19, is an RNA (ribonucleic acid) virus, meaning RNA is its genetic material, unlike humans, in whom DNA (deoxyrib9onucleic acid) forms the genetic material.

Remdesivir works by specifically targeting and disrupting the synthesis of RNA by inhibiting an enzyme called RNA polymerase. Studies have shown that this disruption can decrease viral replication.

"Currently, clinical decisions related to COVID-19 are based on the knowledge of how this drug worked during previous infectious disease outbreaks and safety trials, but we don't know how effective it will be in treating COVID-19. This study aims to find that answer," said Dr. Shivanjali Shankaran, infectious disease expert and principal investigator of the trial at Rush.

Remdesivir has been used in the past to treat other infections, such as Ebola. It also has activity against other coronaviruses that cause diseases, such as SARS and MERS.

Study will enroll patients with severe and moderate COVID-19

Outside of clinical trials, remdesivir only has been available to patients with COVID-19 under compassionate use—the use of unapproved drugs when no other treatment is available.

"This trial will help give us more robust data about effectiveness and side effects of this drug," Shankaran said.

To qualify in the phase III randomized, trial, patients must be hospitalized with moderate to severe COVID-19 with lung abnormalities. Patients at Rush now are being given the option of enrolling in the study, which launched at Rush on April 3.

The study will include two groups of randomized patients with COVID-19; those with moderate or severe disease.

In the study, patients will receive either remdesivir or a nonactive substitute. This medication will be given intravenously for five to ten days. All patients also will receive supportive care (treatment of symptoms and side effects).

"We will be looking at how long the patients are sick, if they had to be intubated and whether this treatment helps patients recover faster," Shankaran said.

"Patients who agree to participate in this study will

be followed closely during their hospitalization and up to a month after starting on the drug to evaluate how they are doing and how they are recovering. We will also evaluate for any side effects to the drug," she added.

"Some side effects could include nausea, headaches, inflamed blood vessels or bruising. We will monitor patients for any additional side effects while they receive the medication."

Provided by Rush University Medical Center