Remdesivir in Adults With Severe COVID-19

The search for a drug to treat patients with coronavirus disease (COVID-19) has created an interest in a relatively new antiviral drug called remdesivir. Although the majority of patients who acquire coronavirus only develop a self-limited mild illness, around 10-20% of patients develop severe pneumonia and respiratory distress that requires ICU care, supplemented with oxygen and mechanical ventilation. Despite the use of conventional ICU treatments, approximately 5% of patients with COVID-19 develop severe acute respiratory distress syndrome and multi-organ failure, leading to high mortality.

COVID-19 has burdened healthcare systems around the globe, and researchers are working very hard to develop a drug that can decrease the symptoms and/or lower mortality. At present, there are no antiviral therapies that have shown effectiveness in treating severely ill patients with COVID-19.

Recently, one drug has gained enormous interest: remdesivir. This broad-spectrum antiviral agent has been shown to be active against many viruses, including filoviruses, paramyxoviruses, pneumoviruses, and coronaviruses. Remdesivir came to prominence when it was used to treat the Ebola virus with some success in a few select patients. In the laboratory, remdesivir has been found to inhibit the growth of several notable viruses, including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), Middle East respiratory syndrome coronavirus (MERS), SARS-CoV-1, and SARS-CoV-2.

Based on its previous use, a study was conducted to evaluate the effects of remdesivir on COVID-19. The randomised double-blind placebo-controlled study was undertaken at ten hospitals in Hubei, China. Patients, 18 years or older, and with a confirmed diagnosis of SARS-COV-2 were included. All patients had symptoms of less than 12 days, had an oxygen saturation of 94% or less on room air, and pneumonia was confirmed by chest x-ray. Patients were then randomly assigned to IV remdesivir or placebo. Clinicans were allowed concomitant use of interferon, lopinavir-ritonavir, and corticosteroids. The primary endpoint was time to clinical improvement up to day 28 or discharged alive from the hospital. The study took place between February 6, 2020, and March 12, 2020. A total of 237 patients were enrolled and randomly assigned to a treatment group (158) and placebo (79).

Results

The study showed that remdesivir-treated patients with symptom duration of ten days or less had a numerically faster time to clinical improvement compared to patients treated with placebo, but the difference between the two populations was not significant. At the same time, adverse events were reported in 66% of patients in the remdesivir group compared to 64% in the placebo group. In 12% of the patients, remdesivir had to be stopped early because of poorly tolerated adverse events. In the placebo group, 5% of patients required the treatment to be stopped early.

Conclusion

Overall, the study showed that patients admitted with severe COVID-19 had a slight decrease in the duration of symptoms when treated with remdesivir, but the data were not significantly different when compared to the placebo group. There was no difference in the mortality between the two groups of patients.

Limitation

The study only looked at one dose of remdesivir and a short course of treatment. The role of other comorbidities was not addressed.

While remdesivir may have potential to treat COVID-19, it is important to conduct additional clinical trials to confirm and/or deny these findings.

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