Remdesivir: Antiviral Drug Treatment for COVID-19
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Abstract

In early 2020, the COVID-19 pandemic forced the world into reconstructing their entire lives to stay safe and healthy. As the number of deaths grew, treatments for COVID-19 were being researched extensively in hopes of curing the tragic virus. Particularly, an antiviral drug named Remdesivir was tested in trials as it was successful in treating viruses of the same family. Many aspects of Remdesivir will be outlined such as its history, administration and effects, chemical features, and statistics of its use. The effectiveness and efficiency of Remdesivir treatment will be outlined with recent, peer-reviewed data from research nationally and worldwide.

Background & History

Remdesivir was first investigated in 2015 for treating the Ebola virus and it was developed by Gilead Sciences. It was approved for compassionate use for COVID-19 in March 2020, followed by approval in March 2020. It has been approved for compassionate use for COVID-19 in March 2020. It was developed by Gilead Sciences to treat Ebola virus infection in 2015.

Chemical Components

Remdesivir is a small molecule that can enter inside the cell. It enters the cell membrane as a nucleoside analogue with prodrug component. Step 2: Then nucleoside monophosphate transforms through phosphorylation to nucleoside triphosphate. Step 3: The adenosine triphosphate mimics a viral nucleotide allowing it to be recognized and added by the viral RNA polymerase enzyme. Step 4: RdRp is inhibited by the addition of Remdesivir nucleotides which prevents viral replication from proceeding because the Remdesivir carbon-carbon bond cannot be removed and nucleotides cannot be added.1,2

Health Effects

Remdesivir shows good tolerability and safety regarding physical health. If the drug is to be administered safely, the weight and health of patient must be considered. Remdesivir distributes through many organs and its half life is short, but that does not mean it is a wonder drug. Side effects can worsen depending on pre-existing conditions of the patient.2,4

Important Statistics

Beigel et al. conducted a large study of 541 participants assigned to Remdesivir treatment and 521 to placebo shows promising results in shortening the hospital stay of COVID-19 patients. Those treated with the drug had a recovery time of 10 days compared to 15 days for placebo group. Mortality when placebo was given was 11.9%, compared to 6.7% treated with the antiviral drug Remdesivir.2

Conclusion

In conclusion, the antiviral properties of Remdesivir inhibit the viral replication of COVID-19 which allows the infected cells to stop reproduction. While the use of Remdesivir may shorten the length of the illness, it has not been suggested to significantly rehabilitate COVID-19 patients. The adverse effects can be more severe depending on the severity of illness, age, and any prior health conditions of the patients.1 Furthermore, the production of Remdesivir is costly and time-consuming which is problematic with the rapid spread of COVID-19. Many studies have been conducted with treatment of Remdesivir supporting its benefit in shortening the hospital stay.

References