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http://www.ijcpa.in

April-June 2022

DOI: 10.21276/2395-2466.22.10.0078

International Journal of CHEMICAL AND PHARMACEUTICAL ANALYSIS

eISSN: 2348-0726 ; pISSN : 2395-2466

Commentary | Volume-10 | Issue-2 | Article ID: 0078

REMDESIVIR: A PRODRUG FOR PATIENTS WITH SEVERE COVID-19

Abhigyan Kapoor*

Department of Pharmacology, Duke University Medical Center, Durham, United States

***Corresponding Author:** *Email:* Kpabhigyan797@yahoo.com

Received: 30-May-2022, Manuscript No. IJCPA-22-66705; **Editor assigned:** 03-Jun-2022, PreQc No. IJCPA-22-66705(PQ); **Reviewed:** 17-Jun-2022, QC No.IJCPA-22-66705; **Revised:** 24-Jun-2022, Manuscript No. IJCPA-22-66705(R); **Published:** 04-Jul-2022; DOI:10.21276/2395-2466.22.10.0078

DESCRIPTION

Remdesivir is an adenosine analogue nucleotide prodrug. It binds to the viral RNA polymerase and checks viral replication by impulsively stopping RNA transcription. Remdesivir has been shown to be effective against SARS-CoV-2 *in vitro*. Remdesivir treatment was started instantly after inoculation in a rhesus macaque model of SARS-CoV-2 infection; the remdesivir treated animals had lower viral stages in the lungs and less lung damage than the control animals. Remdesivir is predicted to be effective against the B.1.1.529 (Omicron) strain under investigation.

The Food and Drug Administration (FDA) has approved intravenous remdesivir for the treatment of COVID-19 in adults and children (aged 12 years and weighing 40 kg). It's approved for the treatment of mild to moderate COVID-19 in high-risk, non-hospitalized patients (a 3-day course started within 7 days of symptom onset) as well as the therapy of COVID-19 in hospitalized patients. It is also approved by the FDA for the treatment of COVID-19 in non-hospitalized and hospitalized paediatric patients weighing 3.5 kg to 40 kg or aged 12 years and weighing 3.5 kg.

Remdesivir can induce nausea, increased transaminase levels, an increase in prothrombin time without a change in the international normalized ratio, and hypersensitivity responses. Estimated Glomerular Filtration Rate (eGFR), liver function, and prothrombin time tests should be performed as clinically suitable before initiating patients on remdesivir and repeated as clinically needed during treatment. However, baseline serum creatinine was not necessary in patients weighing >48 kg in the PINETREE research, in which outpatients with mild to moderate COVID-19 received remdesivir for 3 days. Remdesivir should be stopped if a patient's Alanine Transaminase (ALT) level rises to more than 10 times the upper limit of normal, and it should be stopped if ALT levels rise together with signs or symptoms of liver inflammation.

Remdesivir should only be used in situations when severe hypersensitivity events, such as anaphylaxis, can be controlled and the emergency medical system activated. Patients should be watched throughout the infusion and for at least 1 hour afterward, if clinically indicated.

SARS-CoV-2 replication may be prolonged in critically immunocompromised patients, leading to fast viral development. The administration of a single antiviral drug in these patients could theoretically result in the establishment of resistance virus. To estimate this danger, more research is required. Combination antiviral therapy has yet to be determined. Remdesivir is approved by the FDA to treat COVID-19 in hospitalised pediatric patients weighing 3.5 kg to 40 kg or aged 12 years and weighing 3.5 kg, as well as in

nonhospitalized pediatric patients with mild to moderate COVID-19 who are at high risk of disease progression.

CONCLUSION

Because these groups have not been examined in clinical trials for remdesivir, there is inadequate data on the safety and efficacy of using remdesivir to treat COVID-19 in hospitalized or nonhospitalized pediatric children aged 12 years or weighting 40 kg. The limited data from the compassionate use programme and tiny case series suggest that remdesivir was well tolerated in children who satisfied the EUA criteria, although evidence on young infants and neonates is scarce. Remdesivir's pharmacokinetics in children are now being studied in a clinical investigation.