Editorial

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Pharmacological Treatments for Coronavirus Disease (COVID-19)

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Infection by the SARS-CoV-2 virus, recognized as COVID-19 (Coronavirus Disease-19) was initially noticed in China in December 2019, and has subsequently spread rapidly throughout the world, WHO reported that the outbreak could be defined as a pandemic. Coronavirus disease ranges from mild flu-like events to severe and even life-threatening conditions, predominantly due to acute respiratory failure. The early stage would be considered by a high viral fever; in a second stage, the inflammatory response is predominant where anti-inflammatory drugs play an important role. The emerging pandemic of COVID-19 caused by the different severe acute respiratory syndrome coronavirus 2 presents an unprecedented challenge to identify effective drugs for anticipation and treatment for healthcare systems globally. The fast expanding information regarding severe acute respiratory syndrome coronavirus 2 virology provides a substantial number of potential drug targets. Drugs that are effective against SARS-CoV-2 have yet to be established. The most promising treatment is remdesivir. RDV (Remdesivir) not only in vivo but also *in vitro* testing shows the inhibition of human coronavirus replication, including SARS-CoV as well as ritonavir/Lopinavir that shows promising anti-viral drug against SARS-CoV-2. Remdesivir (RDV) has strong *in vitro* activity against SARS-CoV-2.

Remdesivir (RDV) is a nucleotide analogue. It is metabolized intracellularly into an active triphosphate adenosine analogue that inhibits viral polymerase RNA. Though, antiviral actions were also demonstrated against single-stranded RNA viruses, including MERS and SARS-Cov. Hydroxychloroquine/Chloroquine could impair the replication of SARSCoV-2 by multiple devices and their immunomodulatory properties could upgrade clinical exhibitions that are mediated by immune reactions of the host although its beneficial effects are under question and need to be proven at the clinical level. Recent results from a preclinical study indicated that, *in vitro*, the connotation chloroquine/Remdesivir could be extremely effective in controlling the SARS-Cov-2 infection. The pharmacokinetics of Remdesivir has been concise in compassionate use documentation published by the European Medicines Agency (EMA, 2020). RDV is administered via an intravenous injection with a loading dose on day 1 (200 mg in adults, adjusted for body weight in Pediatric patients) followed by a daily maintenance dose (100 mg in adults) for up to 10 days. Importantly, Remdesivir inhibits viral replication; Remdesivir (RDV) binds to RNA-dependent RNA polymerase (RdRp) and acts as RNA chain terminator. It exhibits effective *in vitro* activity against SARS-CoV-2 with an EC50. RDV (Remdesivir) is very discerning for viral polymerases, hence a low tendency to cause human toxicity. Adverse effects, including hepatic and gastrointestinal dysfunction, and infusion site reactions were reported to be associated with Remdesivir (RDV) therapy.

On May 1, 2020, the Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) for emergency use of RDV for the treatment of hospitalized 2019 COVID-19 patients based on review of the top line data from the Gilead-sponsored open-label trial that evaluated different durations of RDV (NCT04292899), and from the randomized, double-blinded, placebo-controlled trial conducted by NIAID (NCT04280705) (FDA, 2020).

RDV might be crucial for ensuring an efficient treatment, decrease mortality and allow early discharge in relation to Covid-19. Current randomized, placebo-controlled trials are critical in describing its efficacy. Maximum drugs presently used for COVID-19 are approved antiviral agents or antibodies against diseases other than COVID-19.

