



## The Latest Advances of Pharmacotherapy for COVID-19

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## SHORT COMMUNICATION

COVID-19, also known as SARS-CoV-2, has been described as one of the most dangerous virus outbreaks in human history. It has been impacting worldwide health since its appearance in December 2019, with no documented pharmacotherapeutic drug that can neutralise its significant pathogenicity and escalation over the world. This is due to the extraordinary chemical pathways it uses during its life cycle, which takes place in and around the host cell. The virus may successfully infiltrate and reproduce in the host cell thanks to these developed processes. Following a thorough examination of the life cycle, various molecular targets that can be neutralised with the use of pharmacotherapeutic drugs have been identified. These agents bind to their targets and render them inactive.

In the context of the viral life cycle and pathogenicity, this review focuses on those targets as well as the strong medications that are presently being used to lower viral load. We also report on strong medications that have yet to clear clinical trials, in addition to the drugs that are now in use.

In a wholly unprepared world, the coronavirus infectious disease-2019 (COVID-19) has swamped like a shock wave. Despite the fact that coronavirus infections were implicated in earlier pandemic outbreaks, no antiviral medication for specialised therapy has been discovered. As a result, both conventional and experimental medications have been employed to treat infected people from the start of the epidemic, with little indication of therapeutic effectiveness. Clinicians have been confronted with the ongoing pandemic based solely on experience with antiviral agents used to treat other viruses (e.g., lopinavir/ritonavir, remdesivir) and alleged antiviral or immunomodulatory activities of drugs with no approved antiviral indications (e.g., hydroxychloroquine, tocilizumab). COVID-19 therapy has been proposed using a variety of "repositioned" medications (approved for different purposes). Due to their antiviral or immunomodulatory effects, remdesivir (anti-Ebola), lopinavir/ritonavir (anti-HIV), chloroquine and hydroxychloroquine (antimalarial agents), interferon (treatment for multiple sclerosis), and tocilizumab (anti-rheumatic drug) were among the drugs proposed, but none of them had sufficient efficacy or wide availability to ensure a rapid and effective cure.

The absence of known medicines and treatment protocols has made the COVID-19 epidemic extremely difficult. Due to the fast spread of illness, even off-label usage of approved medicines has been hampered by a lack of supply. At present moment, a number of antivirals, antimalarials, and biologics are being evaluated for therapy. The goal of this literature review is to compile all available information on COVID-19 therapy options and provide a resource for health care providers.

There are presently no antivirals (remdesivir, favipiravir) or antimalarials (chloroquine, hydroxychloroquine) that are directly active against SARS-CoV-2; however, numerous antivirals (remdesivir, favipiravir) and antimalarials (chloroquine, hydroxychloroquine) have emerged as possible treatments. In patients with intermediate illness, current guidelines prescribe a combination of hydroxychloroquine/azithromycin or chloroquine if hydroxychloroquine is unavailable, despite the fact that these recommendations are based on insufficient data. In serious patients with respiratory failure, remdesivir and convalescent plasma may be investigated; however, availability to these medications may be limited. Antibodies against interleukin-6 (IL-6) may be utilised in individuals who show signs of cytokine release syndrome (CRS). Unless there is evidence of refractory septic shock, acute respiratory distress syndrome (ARDS), or another compelling rationale, corticosteroids should be avoided. At this time, ACE inhibitors and ARBs should not be stopped, and fever can be treated with ibuprofen.

Several active clinical trials are evaluating the effectiveness of single and combination therapies with the medications included in this review, and novel agents are being developed. We must utilise the best available data for COVID-19 prevention and treatment until the findings of these trials are released. To battle the pandemic, we may also learn from the experiences of healthcare practitioners throughout the world.

Received: December 05, 2021; Accepted: December 19, 2021; Published: December 26, 2021

Citation: Smith R (2021) The Latest Advances of Pharmacotherapy for COVID-19. J Appl Pharm. 13:329.

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