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COVID-19 RECENT UPDATES AND THERAPEUTIC HOPE

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ABSTRACT

The disease caused by this virus has different names. The disease is called COVID-19, Coronavirus Diseases 2019 for the year in which it first appeared globally. COVID-19 is also known as “novel coronavirus,” meaning a new type of Coronavirus not previously discovered or identified. COVID-19 is a type (strain) of Coronavirus. A virus is very small (microscopic) type of germ that can cause an infection. Which causes serious respiratory illness such as pneumonia and lung failure, was first reported in Wuhan, the capital of Hubei, China. COVID-19 is also called SARS-Cov-2 for severe acute respiratory syndrome coronavirus 2? Current clinical management includes infection prevention and control measures and supportive care including supplemental oxygen and mechanical ventilatory support. These drugs and therapeutic agents include antiviral agents (remdesivir, hydroxychloroquine, chloroquine, lopinavir, umifenovir, favipiravir, and oseltamivir), and supporting agents (Ascorbic acid, Azithromycin, Corticosteroids, Nitric oxide, IL-6 antagonists), among others. We hope that this review will provide useful and most updated therapeutic drugs to prevent, control, and treat COVID-19 patients until the approval of vaccines and specific drugs targeting SARS-CoV-2.

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INTRODUCTION

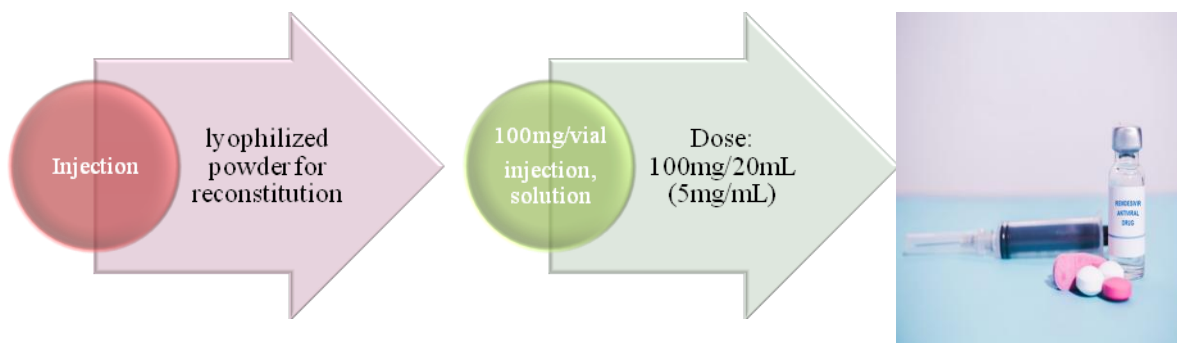
The horrific pandemic outbreak of COVID-19 (coronavirus disease 2019) around the world caught the health care systems in every country by storm, most if not all were caught off guard without proper defense mechanisms to cope with and to control such a pandemic. COVID-19, caused by a new and novel coronavirus (severe acute respiratory syndrome coronavirus 2, SARS-CoV-2), has recently been identified and characterized. Coronaviruses are named for their crown-like spikes on their surface and there are four main sub-groupings of coronaviruses, known as alpha, beta, gamma, and delta. SARS-CoV-2 belongs to the beta sub-grouping, and is one of the seventh coronavirus to date infecting humans.

ANTIVIRAL DRUG

Remdesivir :-

Remdesivir is a potential drug for treatment of COVID-19. It is a phosphoramidate prodrug of an adenosine C-nucleoside and a broad-spectrum antiviral agent synthesized and developed by Gilead Sciences in 2017 as a treatment for Ebola virus. Infection Remdesivir has been recently recognized as a promising antiviral drug against a wide array of RNA viruses (including SARS/MERS-CoV) infection in cultured cells, mice and nonhuman primate (NHP) models. It is currently under clinical development for the treatment of Ebola virus infection. Remdesivir is an adenosine analogue, which incorporates into nascent viral RNA chains and results in pre-mature termination.

Dosage Forms :-



Hydroxychloroquine & Chloroquine :-

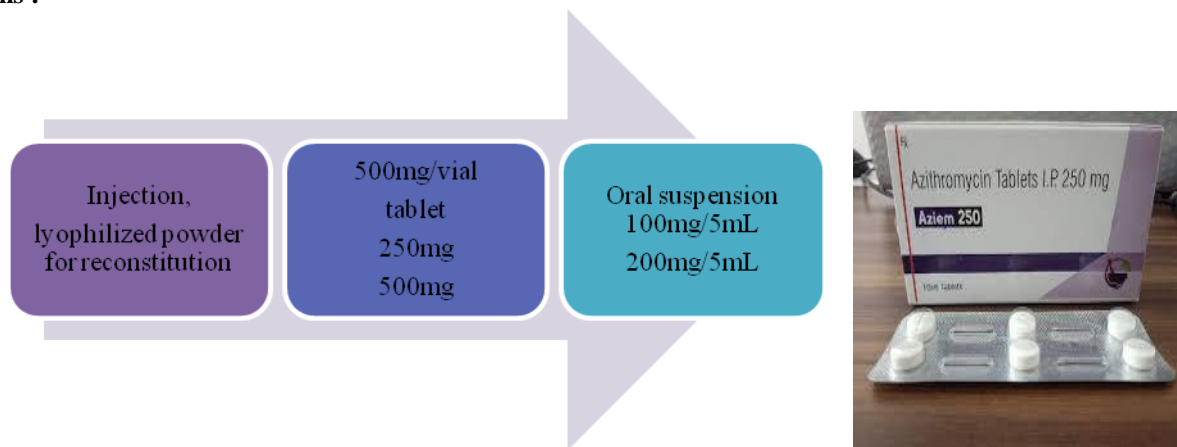
Hydroxychloroquine and Chloroquine are drugs with a long history of clinical use with similar chemical structures often used in the treatment of lupus erythematosus, rheumatoid arthritis, and malaria. Compared with chloroquine, hydroxychloroquine has a hydroxyl group, which makes it less toxic while maintaining similar activity. These medicines are manufactured in tablet form for oral administration as chloroquine phosphate 500 mg (equivalent to 300 mg chloroquine base) and hydroxychloroquine sulfate 200 mg (equivalent to 155 mg hydroxychloroquine base) active drug per tablet, respectively.

Etiology :-

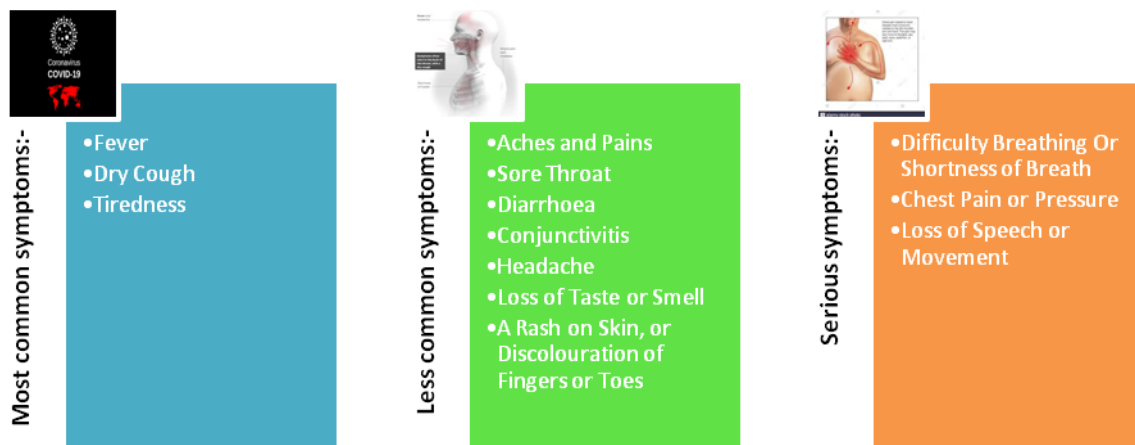
Chloroquine and hydroxychloroquine bind to melanin in the retinal pigment epithelium (RPE) and cause damage to the macular cones outside of the fovea. The drugs inhibit RPE lysosome activity, reduce phagocytosis of shed photoreceptor outer segments causing an accumulation of outer receptor segments.

Azithromycin:

Azithromycin is an antibiotic that can be used to fight many different types of infections caused by susceptible bacteria, such as respiratory infections, skin infections, and sexually transmitted diseases. Moreover, it has been proven to be active in vitro against Zika and Ebola viruses and to prevent severe respiratory tract infections when treated to patients suffering viral infection. For the mechanism of action, azithromycin prevents bacteria from growing by interfering with their protein synthesis. It binds to the 50S subunit of the bacterial ribosome, thus inhibiting translation of mRNA. Previously, azithromycin has been used as adjunctive therapy to provide antibacterial coverage and potential immunomodulatory and anti-inflammatory effects in the treatment of some viral respiratory tract infections (e.g., influenza).

Dosage Forms :-**Convalescent Plasma :-**

COVID-19 is an infectious disease that is caused by a new coronavirus, SARS-COV-2. The outbreak has affected almost every country of the World and as of July 11, 2020, a total of 12,639,583 confirmed cases and 563,137 deaths had been reported in 188 countries. As the development of efficient and safe vaccination will require months, quick alternative treatments are sought. Passive immunisation using the plasma of recovered COVID-19 donors for the treatment of severe COVID-19 cases could offer a suitable therapeutic strategy. The plasma of recovered COVID-19 donors contains specific IgG and IgM anti-SARS-CoV-19 antibodies, which can neutralize the virus. However, implementation of a convalescent plasma transfusion programme might need comprehensive planning. The current treatment of COVID-19 caused by novel coronavirus SARS-CoV-2 has been limited to general supportive care, with provision of critical care as no vaccines are available. The clinical data for the studies involving COVID-19 are still scarce and limited to data from China, Spain, Italy, United States of America, Germany, France, The United Kingdom, and other international registries. This will be a problem when predicting treatment outcomes.

Symptoms :-

Seek immediate medical attention if you have serious symptoms. Always call before visiting your doctor or health facility. People with mild symptoms who are otherwise healthy should manage their symptoms at home. On average it takes 5–6 days from when someone is infected with the virus for symptoms to show, however it can take up to 14 days.

CONCLUSION

All patients with COVID-19-infected received antibacterial agents, 90% received antiviral therapy, and 45% received methylprednisolone. Clinical trials are underway to investigate the efficacy of new antiviral drugs, convalescent plasma transfusion, and vaccines. The COVID-19 pandemic is a public health emergency of international concern, and all countries need a coordinated international effort to fight COVID-19. In the absence of vaccines and antivirals, isolation and quarantine are achieving remarkable results. It is necessary to strengthen the monitoring of COVID-19 and to develop drugs and vaccines against the COVID-19 infection as soon as possible.

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