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Review Article

A Concise Review of the Popularised Drugs Used For The Management of COVID-19 (SARS-CoV-2)

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Abstract

Background: Coronavirus disease 2019 (COVID-19) caused by SARS-COV-2 has been largely associated with many different therapeutic agents (both homeopathic & pharmaceutical) by the media and the general public but there is little evidence-based published material to support their claims. The purpose of this article is to provide a comprehensive review of the various therapeutic agents used for the treatment of COVID-19 which have been lauded by the media and the general public.

Method: We conducted an in-depth review of the various case reports and retrospective clinical studies published on the therapeutic measures, both homeopathic and pharmaceutical, used for the management of COVID-19 using PubMed and Google Scholar as our primary sources. We analyzed the real-life implications of alternative therapies such as Ayurveda and Pranayama and herbal medications such as Sana Makki and Sangju yin being used as a form of prophylaxis, and add-on treatments. We've also assessed the therapeutic effects of various pharmaceutical agents currently being used in the management of COVID-19 and other drugs that have been popularized by various news outlets and social media.

Conclusion: Research is still ongoing on the various drugs used in the management of COVID-19. Caution has to be taken when introducing a new medication into treatment regimens, whether it is allopathic or homeopathic, without proper evidence despite pressure from the media and/or the patients. As

mismanagement can further strain the overwhelmed healthcare system. Patient and general public education should take precedence as no drug is a cure-all for this novel virus. New updates come every day and treatment protocols are refined throughout the world thanks to the flow of information and the joint effort of researchers and clinicians.

Keywords: COVID-19; SARS-COV-1; SARS-COV-2; Coronavirus; Remdesivir; Ritonavir; Senna; Hydroxychloroquine; Alexandrian Senna; Traditional Chinese Medicine; Dexamethasone; Azithromycon; Immunomodulators; Antivirals; Herbal; Prophylaxis; Pharmaceutical therapy

Introduction

In December 2019, a pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection occurred in Wuhan, Hubei Province, China, and spread across China and beyond. On February 12, 2020, the WHO officially named the disease caused by the novel coronavirus as Coronavirus Disease 2019 (COVID-19) [1]. On observation, many similarities have been noted between the COVID-19 infection and SARS, the coronavirus that also originated in an animal-to-human transmission in China in 2002, though it does not appear to be as deadly [2]. It is estimated that in 70% of patients the disease is asymptomatic or with very mild symptoms, while the remaining 30% of patients suffer from a respiratory syndrome associated with high fever and cough. In some cases, this may progress to respiratory failure and the patient may require ICU admission [3]. There is no specific antiviral treatment recommended for COVID-19, and no vaccine is currently available. Symptomatic treatment is encouraged and for patients with respiratory impairments, oxygen therapy is indicated. Non-invasive (NIV) and invasive mechanical ventilation (IMV) may be necessary in cases of respiratory failure refractory to oxygen therapy [4]. The purpose of this article is to review all the herbal and pharmaceutical drug therapies used in the treatment of COVID-19.

Discussion

As the search for a cure continues, we must remain cautious of the misinformation that is prevalent on social media regarding the effectiveness of certain treatment options. Many plants and substances are being proposed without the minimum requirements and evidence of quality, safety, and efficacy [5]. In China, many people are turning towards Traditional Chinese Medicine as a means to combat COVID-19. Based on clinical evaluation, patients with high fever were given Yin Qiao San, and patients with severe cough were given Sangju yin both are carefully made concoctions of different herbs [6]. In India and Pakistan, Alexandrian Senna has been popularized by the public as a successful prophylactic against COVID-19 when in reality it is considered a laxative because it stimulates bowel muscle contractions [7]. Used because it was believed to increase immunity as constipation is seen as a sign of weak immunity. Publicized by the acting provincial governor and some homeopathic practitioners.

During the SARS-CoV-2 spread in Wuhan, allopathic therapy was used for COVID-19 treatment in the Wuhan Jinyintan Hospital (based on 99 patients), including antiviral treatment (76%), antibiotic treatment (71%), oxygen therapy (75%), and intravenous immunoglobulin therapy (27%), 14 although no COVID-19 drug has been approved by the US Food and Drug Administration. There is also no

effective pharmacologic treatment against COVID-19 [8]. On March 19, 2020, President Donald Trump endorsed the use of Hydroxychloroquine, a common antimalarial drug, for the management of COVID-19 despite resistance from the FDA. On March 29 the FDA approved the emergency use of Hydroxychloroquine in combination with Azithromycin without any evidence of its efficacy. Hydroxychloroquine was believed to significantly reduce the viral load in patients afflicted by COVID-19 [9]. Hydroxychloroquine is an immunomodulator that is believed to have additional antiviral activities [10]. Although short-term hydroxychloroquine treatment is safe, the addition of azithromycin may induce heart failure and cardiovascular mortality [11]. Thus, it was concluded that despite Hydroxychloroquine did not cause any harm, it was unlikely to be of any benefit to hospitalized patients [12]. The antiretroviral drug Lopinavir, a protease inhibitor, is most commonly used for the treatment of HIV. It is widely used in combination with another protease inhibitor, Ritonavir. Lopinavir/Ritonavir was previously used for the management of SARS COV-1 [13]. The interim trial results of the Solidarity trial conducted by WHO show that hydroxychloroquine and lopinavir/ritonavir produce little or no reduction in the mortality of hospitalized COVID-19 patients when compared to standard of care [14]. Dexamethasone, a corticosteroid, is used in a wide range of conditions due to its anti-inflammatory and immunosuppressive effects [15]. It was tested in hospitalized patients with COVID-19 in the United Kingdom's national clinical trial RECOVERY and was found to reduce deaths by 35% in ventilated patients and by 20% in other patients receiving oxygen only. Despite being lauded as a miracle drug by the media, Dexamethasone only seemed to reduce 28-day mortality among those receiving invasive mechanical ventilation or oxygen at randomization, but not among patients not receiving respiratory support [16]. The Chinese government recommends the use of Tocilizumab only for patients in critical conditions. Tocilizumab is an IL-6 inhibitor that was recommended in COVID-19 patients to prevent or treat cytokine storms [17]. A single dose of TCZ was observed to be unsuccessful in terms of improving the disease activity in critically ill patients used in combination with glucocorticoid. However, in critically ill patients, repeated doses of TCZ improved their condition but in this study the sample size was of 15 [18]. Remdesivir, a nucleotide analog prodrug, has broad-spectrum activity against members of several virus families, including filoviruses (e.g., Ebola) and coronaviruses (e.g., SARS-CoV and Middle East respiratory syndrome coronavirus [MERS-CoV]. According to the Adaptive COVID-19 Treatment Trial [ACTT], Remdesivir is shown to reduce the recovery time [19]. This improvement was noted specifically in patients receiving supplemental oxygen therapy, not ventilated or on ECMO. With 68% of those patients given in a previous study showing a decrease in time to recovery [20] the drug is seeing widespread shortages across the united states and a surge in black-market pricing in India. The use of products to treat COVID-19, which have not been robustly investigated can put people in danger, giving a false sense of security and distracting them from hand washing and physical distancing which are cardinal in COVID-19 prevention, and may also increase self-medication and the risk to patient safety [21].

Conclusion

Research is still ongoing on the various drugs used in the management of COVID-19. Caution has to be taken when introducing a new medication into

treatment regimens, whether it is allopathic or homeopathic, without proper evidence despite pressure from the media and/or the patients. As mismanagement can further strain the overwhelmed healthcare system. Patient and general public education should take precedence as no drug is a cure-all for this novel virus. New updates come every day and treatment protocols are refined throughout the world thanks to the flow of information and the joint effort of researchers and clinicians.

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