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Existing drugs as treatment options for COVID-19: A brief survey of some recent results

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ABSTRACT

The novel coronavirus, namely SARS-CoV-2, emerged from central China in December 2019 and then spread rapidly worldwide. It has infected hundreds of thousands of people and killed several thousand thus far. The illness caused by this coronavirus is called COVID-19 and has been declared a global emergency by the World Health Organization (WHO) on January 30, 2020. Although a series of existing drugs have shown some promise in treating COVID-19, there is currently no approved medication that treat this disease. In this focus-review, we aim to summarize the available literature on the potential usefulness of existing drugs against COVID-19.

1. Introduction

Coronaviruses are a large family of viruses that cause illness ranging from the common cold to much more serious diseases such as severe acute respiratory syndrome and Middle East respiratory syndrome [1]. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the most recently discovered member of this family which was first reported on 31 December 2019 [2]. The vision shape of this novel virus is essentially a spiky ball, with a diameter of approximately 60–140 nm [3] (Figure 1).

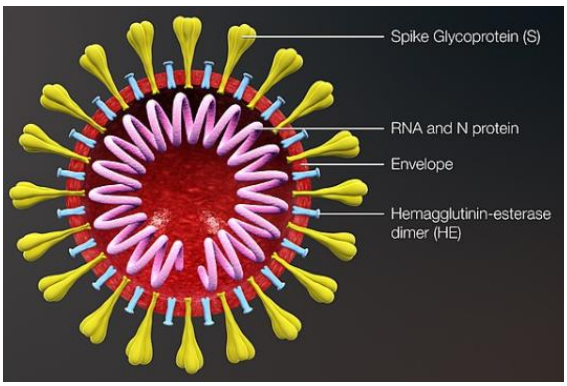

Figure 1. Structure of Coronavirus

The disease it causes is called coronavirus disease 2019 (COVID-19) and the most common symptoms of this disease are fever, cough, shortness of breath and fatigue, while other symptoms include muscle pain, sputum production, headache, loss of smell and taste, sore throat, and diarrhea [4]. The findings show that SARS-CoV-2 is not transmitted through the airways, and through major infection control measures, including wearing surgical masks, hand and environmental hygiene, hospitalization can be prevented [5]. Globally, the virus has infected hundreds of thousands of people since its emergence (Figure 2) [6]. The fatality rate for people with COVID-19 disease is between 3%-4% and by 29 March, more than 31000 people have died worldwide [7]. Unfortunately, there's currently no treatment specifically approved for COVID-19, and scientists are working to develop new and effective medicines to treat this disease. However, new interventions are likely to require months to years to develop. On the other hand, number of clinical researches are underway to repurpose existing drugs for this emerging virus infection, this strategy could shorten the time and reduce the cost compared to de novo drug discovery. Herein, we aim to review the recent results