Letter to the Editor:
Treatment of COVID-19: Old Friends for a New Enemy

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Dear Editor

While we are waiting for the "best good news" of a vaccine that allows us to control the SARS-CoV-2 virus that causes COVID-19, we have to find a solution to reduce the adverse effects of the disease on people's health. The situation is not hopeful. According to the World Health Organization, 4278180 people have been infected, of whom 292376 have died (May 13, 2020), many in their productive age who surely were out of the economic upheavals due to the measures adopted to anticipating the pandemic will also have a negative impact on the world economy.

The global effort to develop a vaccine for the COVID-19 is unprecedented in humanity, and it is postulated that at this speed, we are going to get results in one or two years. To date, there are more than 100 efforts were made to develop possible vaccines, of which more than half are in the active process [1]. However, due to the complexity of the process and the time that this development can take, it is necessary to find some successful treatment, even if it is temporary, that reduces the adverse effects of the infection on humanity.

Searching in PubMed since 1970 using the following terms of SARS-CoV-2 or SARS-CoV-1 or COVID-19 or SARS or MERS or coronavirus and pharmacology, 31178 articles were found (May 13, 2020). Of these, 38% have been published in 2020 (11900 articles) in just 5 months (Figure 1). Besides, the results show that the number of articles increased dramatically in 2003 when SARS appeared.

Several strategies for COVID-19 treatment have been proposed. Natural products with known activity against different species of CoV are now potential candidates. Most of them are herbs from traditional Chinese medicine, and some examples are Lycoris radiata, Rheum officinale, and Polygonum multiflorum which exerted a strong effect against SARS-CoV-2 [2].

The in vitro antiviral effect of several agents has been demonstrated, but because of urgency to find pharmacological treatments, researchers have conducted several clinical studies with standard treatments approved for other medical conditions: chloroquine and hydroxychloroquine for the treatment of malaria and chronic inflammatory diseases; the lopinavir/ritonavir combination for the antiretroviral therapy for HIV; the antiviral umifenovir, currently approved for the treatment of influenza; the monoclonal antibody IL-6 receptor agonist, used in rheumatoid arthritis treatment; and also the combination of interferon-β with the antiviral therapies [3-7]. The investigational drugs remdesivir and favipiravir, used for Ebola and influenza viruses, respectively are also studied [8].

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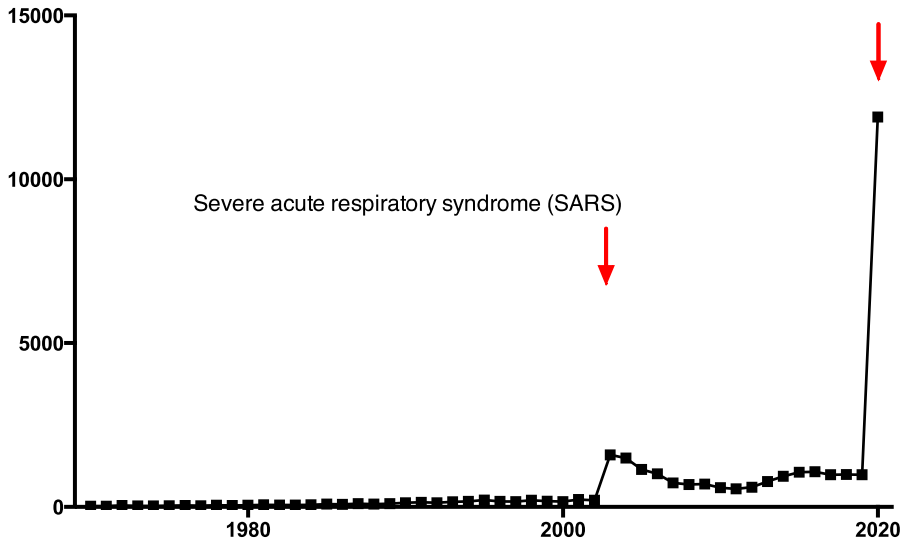

Figure 1. Articles published about coronavirus and pharmacology in PubMed

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A recent review from Sanders et al. concluded that despite the high volume of published literature about pharmacological treatments for COVID-19, any medical therapy has been shown to improve the outcome, and powered randomized trials are needed [8]. However, remdesivir and favipiravir are reported as the most promising treatments [8, 9].

In this regard, the WHO started a streamlined global clinical trial called SOLIDARITY to collect robust scientific data during the pandemic, that will randomize confirmed cases into the potential treatments by remdesivir, chloroquine or hydroxychloroquine, lopinavir/ritonavir and this combination plus interferon-β [10].

The physiopathological mechanism of novel coronavirus was recently described using bioinformatics and revealed that some viral proteins attack 1-beta chain of hemoglobin, and others bind to porphyrin, leading to a restrained carriage of oxygen [11]. Besides, this study showed that chloroquine could prevent these bindings and potentially relieve the symptoms of respiratory distress. Recently, a study demonstrates that both chloroquine and its less toxic derived hydroxychloroquine, inhibits SARS-CoV-2 in vitro, instead suggesting that the antiviral activity of hydroxychloroquine seems to be less potent than chloroquine, both drugs effectively blocked the transport from endosomes to endolysosomes [12]. At the end of March, around 20 studies on chloroquine and hydroxychloroquine effects were conducted in China, but according to the WHO, no data have been shared [10]. A French team conducted two small trials using hydroxychloroquine in combination with azithromycin, and showed a significant reduction in the viral load and also some clinical improvement [3, 4]. Recently, the same team revealed promising data from a larger study conducted in a cohort of 1061 COVID-19 patients. The combination of hydroxychloroquine and azithromycin revealed a good clinical outcome of 91.7% within 10 days, and also a very low mortality rate (0.75%) [13]. Since no cardiac toxicity was found, the authors present this combination as a safe and efficient treatment.

Along with the spread of the epidemic, the scientific community is working and the research findings increase. More randomized clinical trials are conducted right now, and the evidence is growing, leading to making better choices about the treatments. Maybe the repurposed medications are the answer or will help to complete the studies with promising results. All these efforts are exactly what we need to face this challenge and effectively combat the pandemic.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

Both authors were equally contributed in preparing this article.

Conflict of interest

The authors declare no conflict of interest.

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