Letter to Editor:
Hydroxychloroquine: A Prophylaxis Bridge Till Finding the COVID-19 Vaccine

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Dear Editor

Following the first report of novel coronavirus infection in December 2019 in Wuhan, COVID-19 has become appealing for researchers worldwide. During the pandemic, due to the high viral atmosphere and contaminated medical equipment, healthcare workers are extremely prone to COVID-19 infection. Despite adequate protection, healthcare workers are still more susceptible to getting infected due to their presence in highly contaminated areas, like the intensive care units, and dealing with unsafe procedures like endotracheal intubations [1]. Therefore, prophylaxis against the COVID-19 is of undeniable importance for healthcare workers.

Various companies and research teams have adopted different approaches towards the prophylaxis against COVID-19. Vaccination, as a tremendously successful strategy in medical history, is undoubtedly among the fields of research. Still, more time is needed to reach the desired results and introduce a specific vaccine for this disease [2]. Among the numerous antiviral drugs, none is recommended for routine COVID-19 prophylaxis. However, chloroquine, which has been previously used to treat malaria, can prevent COVID-19 infection [3]. This drug has some antiviral mechanisms of action effective in dealing with SARS-CoV-2, including the inhibition of viral replication in the fusion phase, prevention of viral uncoating, immunomodulation through inhibition of S-binding protein, and inducing phagocytosis [4, 5]. Chloroquine and hydroxychloroquine also affect the terminal glycosylation of angiotensin-converting enzyme 2 (ACE2), which is known to play a chief role in the pathogenesis of SARS-CoV-2 virus, due to the high affinity of SARS-CoV-2 spike proteins in binding with human ACE2 [6, 7]. Many studies have already demonstrated that ACE2 shows the tendency of a functional receptor for SARS-CoV-2 [8, 9].

Currently, many trials assess the effectiveness of chloroquine/hydroxychloroquine as a prophylactic drug for at-risk individuals [10-12]. Considering the low incidence of COVID-19 in malaria-endemic regions and lower incidence of COVID-19 in patients with rheumatoid arthritis, this drug may have a prophylactic effect on the novel coronavirus infection. Besides, having a long half-life makes this drug more ideal for a prophylactic agent [13].

Despite all benefits of preventing COVID-19 infection in healthcare workers and medical staff, hydroxychloroquine and chloroquine should be administered with caution. Ophthalmic and cardiac complications have been reported as side effects of these agents in previous studies [14]. However, the complications can be limited by taking lower

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doses of the drug and concurrent use of magnesium sulfate [15]. Hydroxychloroquine, as a derivative of chloroquine with fewer side effects, is suggested over chloroquine [3].

Our knowledge of SARS-CoV-2 is increasing day by day, getting us closer to find the ideal treatment and prophylaxis of COVID-19 soon. Hence, till finding an appropriate prophylactic drug or vaccine for COVID-19, people at high risk of infection, especially healthcare workers, can use this drug as a prophylactic measure.

Ethical Considerations

Compliance with ethical guidelines

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

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Authors' contributions

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Conflict of interest

The authors declared no conflicts of interest.

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