Letter to the Editor

Probable QT Prolongation between Chloroquine/Hydroxychloroquine in Treatment of COVID-19 Infection and other Medications

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Dear Editor

Drug-drug interactions (DDI) occur when the effects of one drug are changed by the presence of another substance such as drugs, herbal products, and complementary medicines. Clinically significant DDIs are potentially life-threatening; therefore, it is essential to have a clear understanding and attention regarding the health care professionals towards DDIs and identify a proper management strategy (1).

In late December 2019, early reports predicted the onset of a potential Coronavirus outbreak in China, given the estimate of a reproduction number for the 2019 Novel Coronavirus (COVID-19, named by WHO on Feb 11, 2020). In a short period, the virus spread has occurred in many countries such as Italy and Iran (2). Currently, no effective antiviral treatment or vaccine is available for COVID-19 except for the old antimalaria medications, which are shown to have significant efficacy and safety against COVID-19 associated pneumonia in multicenter clinical trials conducted in China (3). Also, a group of Korean physicians with experience in treating SARS-CoV-2 infected patients have developed recommendations for the treatment of COVID-19. They have mentioned that treatment with lopinavir 400 mg daily; ritonavir 100 mg daily; chloroquine 1000 mg daily or hydroxychloroquine 400 mg daily (where chloroquine is unavailable) should be considered for use in older patients or patients with underlying conditions and serious symptoms (4).

In the setting of COVID-19 management, attention to probable DDIs between chloroquine (or hydroxychloroquine) and the other medications is necessary for healthcare providers. It seems that the most important DDIs are those which occur by the QT prolongation mechanism. Both chloroquine and hydroxychloroquine have been reported as causes of acquired QT interval prolongation. Prolongation of the QT interval can cause a potentially fatal polymorphic ventricular tachycardia called torsades de pointes (TdP) (5). There is a list of medications involved in the induction of QT prolongation such as methadone, haloperidol, and ondansetron (5). It seems that attention to probable DDIs among medications induced QT prolongation and antimalarial medication using for the treatment of COVID-19 is important. The initial presentations or the chief complaints of some hospitalized patients with the COVID-19 infection are gastrointestinal symptoms such as nausea and vomiting (N/V). In this case, physicians may prescribe

ondansetron or metoclopramide; however, co-administration of mentioned chloroquine or hydroxychloroquine may potentiate QT prolongation. It seems that it is better to prescribe medications such as diphenhydramine or dimenhydrinate for the management of N/V in these cases. On the other hand, anxiety and agitation are manifestations of COVID-19 infections in some patients. Considering QT prolongation properties of several psychotropic medications, such as haloperidol and quetiapine, it is better to administer the other antianxiety medications such as diphenhydramine or chlordiazepoxide for the management of anxiety and agitation in these cases. As QT prolongation has been reported by methadone amongst opioids, administration of morphine or oxycodone is recommended for pain relief in COVID-19 infected patients under treatment of either chloroquine or hydroxychloroquine. These examples show the importance of attention in drug selection and a prescription for treatment of COVID-19 infected who are treated by chloroquine or hydroxychloroquine.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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