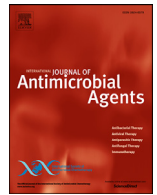




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Letter to the Editor

May drug-related cardiovascular toxicities persist after hospital discharge in COVID-19 patients?

Sir,

Besides respiratory manifestations, COVID-19 has cardiac implications, which have been shown and reviewed by Guo et al. and Madjid et al. [1,2]. Hypertension, diabetes, cardiovascular diseases, and cerebrovascular diseases have been highlighted as risk factors for fatality. Guo et al. demonstrated the effects of comorbid conditions on cardiac outcomes in a limited sample sized study. Their results could have been biased by certain confounders. Cardiotoxicity might also be associated with the drugs used in the treatment of comorbidities rather than the comorbidity itself. In order to overcome confounders, multivariate analysis is needed, which also includes co-medications along with comorbidities. COVID-19 has high fatality among the elderly (> 60 years). Excess fatality might also be associated with polypharmacy, which is commonly seen in the elderly, and drug-related problems besides comorbidities and the disease itself [3].

Currently, reliable treatment options for COVID-19 do not exist. However, patients keep on being treated with limited scientific evidence. Oseltamivir, umifenovir and ribavirin have safer cardiovascular profiles, whereas chloroquine or hydroxychloroquine, lopinavir/ritonavir and azithromycin have certain toxicity potentials [4]. Vascular inflammation and myocarditis manifesting in the course of COVID-19 might in turn prolong the QT interval. Guo et al. confirmed that myocardial injury revealed by elevated troponin levels was associated with excess fatality. Furthermore, they showed that patients with elevated troponin levels were prone to arrhythmias. Despite none of the patients in Guo's cohort receiving hydroxychloroquine, the arrhythmia rate among patients with elevated troponin levels was as high as 71%. Treatment with hydroxychloroquine in those vulnerable patients may further hinder cardiac reserves and predispose patients to fatal arrhythmias. Relying on those results we propose that, in addition to baseline electrocardiography (ECG) monitoring, serum troponin levels should be measured before initiating hydroxychloroquine. Nowadays, inpatients are routinely monitored with ECG during their hospitalization for COVID-19. Given that hydroxychloroquine has a long half-life (about one month), hydroxychloroquine-related retinopathy may emerge 6 months after discontinuation of the drug [5]. Drug-drug interaction risk and hydroxychloroquine-related QT prolongation may also manifest even after hospital-discharge. We sug-

gest follow-up ECG evaluations for people who receive hydroxychloroquine and/or azithromycin. Telemedicine fueled with ECG monitoring could be implemented for follow-ups.

Declarations**Funding:** None.**Competing Interests:** None.**Ethical Approval:** Not required**References**

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