Critical Care

LETTER

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Higher incidence of arrhythmia in COVID-19 than in other community-acquired pneumonia: possible role of concurrent therapies

Patrick M. Honore[1,2*], Sebastien Redant[2], Thierry Preseau[3], Sofie Moorthamers[3], Keitiane Kaefer[2], Leonel Barreto Gutierrez[2], Rachid Attou[2], Andrea Gallerani[2] and David De Bels[2]

In their recent meta-analysis, Liao et al. concluded that the incidence of arrhythmia was higher in COVID-19 than in other community-acquired pneumonia (CAP) (16.8% vs. 4.7%, 95% CI 2.4–8.9) [1, 2], with 2 out of 10 COVID-19 patients dying after developing arrhythmia [3]. Higher incidence rates of conduction disorders and premature contractions were found in COVID-19 patients, compared to other types of arrhythmias [1]. The authors noted that possible mechanisms of arrhythmia may include cardiac damage from metabolic disarray, hypoxia, neurohormonal or inflammatory stress and infection-related myocarditis in the setting of COVID-19 [4]. However, in the vast majority of the studies included, a substantial number of patients were receiving hydroxychloroquine [1], and sometimes azithromycin, and lopinavir/ritonavir [3]. Currently, there is no robust clinical evidence for a benefit associated with these drugs in the treatment of COVID-19, though most, if not all, are associated with the potential to prolong the QT interval, and induce 'Torsades de Pointes,' with a consequent risk of drug-induced sudden cardiac death [3]. We felt it important to point out that treatment with hydroxychloroquine in particular may have contributed to these arrhythmias in COVID-19 patients [1]. Given an estimated prevalence of 1 per 2000 of congenital long QT syndrome (LQTS) in the general population [5] and given the fact that it is generally considered to be significantly underdiagnosed, administration of QT interval prolonging drugs in COVID-19 patients may go some way to explain the increased incidence of arrhythmia. [5].

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*Correspondence: Patrick.Honore@CHU-Brugmann.be
[1] Faculty of Medicine, ULB University, Brussels, Belgium
Full list of author information is available at the end of the article

Authors' response

Shu-Chen Liao[4,5], Shih-Chieh Shao[6,7] and Ming-Jui Hung[5,8,9*]

*Correspondence: hmj1447@cgmh.org.tw
[4]Department of Emergency Medicine, Keelung Chang Gung Memorial Hospital, Keelung, Taiwan
[5]College of Medicine, Chang Gung University, Taoyuan, Taiwan
[6]School of Pharmacy, Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan.
[7]Department of Pharmacy, Keelung Chang Gung Memorial Hospital, Keelung,Taiwan
[8]Section of Cardiology, Department of Internal Medicine, Keelung Chang Gung Memorial Hospital, No. 222, Maijin Rd., Anle Dist., Keelung, Taiwan
[9]Community Medicine Research Center, Keelung Chang Gung Memorial Hospital, Keelung, Taiwan

The authors appreciate Dr. Honore and his team's valuable comments on our previous meta-analysis of arrhythmia in COVID-19 patients [1]. We agree with the viewpoint that higher incidence of arrhythmia in COVID-19 patients reported in prior literature could probably be explained by the complicated treatment [6].

However, the management strategies for COVID-19 are evolving quite rapidly, and some treatments with potential cardiac side effects, such as hydroxychloroquine, azithromycin and lopinavir/ritonavir, are not recommended under the current guidelines [7]. While existing systematic reviews and meta-analyses should be continually updated, our presented work maintains its emphasis on the clinical importance of monitoring arrhythmia to optimize patient outcomes during this pandemic [1, 8].

Abbreviations
CAP: Community-acquired pneumonia; LQTS: Long QT syndrome.

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Author details
[1]Faculty of Medicine, ULB University, Brussels, Belgium. [2]ICU Department, Centre Hospitalier Universitaire Brugmann, Brugmann University Hospital, Place Van Gehuchtenplein, 4, 1020 Brussels, Belgium. [3]Emergency Department, Centre Hospitalier Universitaire Brugmann, Brussels, Belgium.**Received:** 14 June 2021 **Accepted:** 21 June 2021
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