

Short Commentary

Electrocardiographic Control with Portable Device during COVID-19 Pandemic

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After more than a year since the first case, the coronavirus disease 2019 (COVID-19) pandemic has so far infected more than 115 million people and more than 2,5 million deaths have been reported. Since no effective treatment is available, prevention and vaccines are essential to face the disease. Protecting vulnerable groups is a key strategy to avoid the health system collapse and reduce the number of deaths and, until we reach Herd immunity.

During the first months of the pandemic some studies [1,2] suggested that the treatment with some immunomodulators, such as hydroxychloroquine or azithromycin, could help inhibit the replication of the virus and lessen the severity of the disease. However, warnings about the potentially dangerous side effects of this combination of drugs began to appear, since both can prolong the QT interval in the electrocardiogram (ECG), what can lead to an increased risk of fatal arrhythmias. The cardiology service of our hospital designed a protocol to control the ECG in hospitalized patients under treatment with these drugs, and to overcome the difficulty of performing repeated ECGs to patients under respiratory and contact isolation, we used a portable device (KardiaMobile 6L, AliveCor Inc., United States) after an internal study in which we checked the device precision compared to conventional electrocardiograph [3]. The advantages of this portable device are the small size, wireless Bluetooth connectivity, easy of disinfecting and the possibility of making the ECG without patient's collaboration just placing the device over the chest. The aim of the protocol was to identify patients at risk when QT interval

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was prolonged, so we could discontinue the treatment or correct electrolyte disorders to prevent sudden death due to arrhythmic events. During April and May 2020, 81 patients with confirmed SARS-CoV-2 infection (age 63.4 SD 17.2 years; 70.3% men) were monitored by the ECG protocol, while being treated with lopinavir/ritonavir, azithromycin and hydroxychloroquine, both individually or combined. The use of these therapies increased significantly the QT interval ($p < 0.001$). During the surveillance period, nine patients needed to be admitted to the ICU due to unfavourable clinical outcome, and six patients died of respiratory complications. Ten patients developed drug-induced QTc prolongation (defined as $QTc > 470$ ms or $JTc > 350$ ms for men and $QTc > 480$ ms or $JTc > 360$ ms for women). All patients corrected the electrocardiographic abnormality after stopping COVID-19 medications or correcting electrolyte disorders. In conclusion, until an effective therapy becomes available, one of the main objectives in patients' assistance should be to decrease harmful side effects of treatments with questionable benefits. In this sense, portable monitoring ECG devices constitute a reliable tool in those patients treated with drugs with cardiac side effects.

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