

Chloroquine/lopinavir/ritonavir/umifenovir

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QTc interval prolongation, drug interaction and off-label use: 2 case reports

A report from China described two 56-year-old women, who developed corrected QT (QTc) interval prolongation during off-label treatment with chloroquine, and pharmacokinetic interaction between off-label lopinavir/ritonavir and off-label umifenovir for coronavirus disease 2019 (COVID-19) pneumonia.

This report describes case 1: A 56-year-old woman was admitted due to various symptoms and was diagnosed with COVID-19 pneumonia on 01 February 2020. Thus, she was scheduled to receive off-label treatment with oral lopinavir/ritonavir 400/100mg twice daily from 03 February 2020 to 13 February 2020, oral umifenovir [arbidol] 0.2g thrice daily from 03 February 2020 to 19 February 2020, IV methylprednisolone 40mg from 09 February 2020 to 16 February 2020 and oral chloroquine 0.25g twice daily from 11 February 2020 to 21 February 2020. She also received pantoprazole. On 12 February 2020, ECG showed atrial rate of 72 bpm with prolonged QTc interval at 482ms. Her plasma K⁺ and Na⁺ levels were within normal range; however, total calcium was slightly low. Following completion of lopinavir/ritonavir, ECG showed improved QTc interval to 451ms and then 410ms on 13 February 2020 and 16 February 2020, respectively. She was then treated with potassium chloride. Subsequently, her total calcium level normalised. She had completed the scheduled therapy. Thereafter, she was discharged from the hospital in good general condition. The QTc prolongation was considered to be related to chloroquine, and pharmacokinetic interaction between lopinavir/ritonavir and umifenovir.

This report describes case 2: A 56-year-old woman was admitted due to fever and was diagnosed with COVID-19 pneumonia on 02 February 2020. Thus, she was scheduled to receive off-label treatment with oral lopinavir/ritonavir 400/100mg twice daily from 05 February 2020 to 13 February 2020, oral umifenovir 0.2g thrice daily from 05 February 2020 to 19 February 2020, and oral chloroquine 0.25g twice daily from 12 February 2020 to 22 February 2020. She also received pantoprazole. Her plasma K⁺ and Na⁺ levels were within normal range. On 12 February 2020, ECG showed atrial rate of 78 bpm with prolonged QTc interval at 467ms. On 15 February 2020, 2 days after completion of lopinavir/ritonavir therapy, the QTc interval improved to 422ms. She was then treated with potassium chloride. She had completed the scheduled therapy. Thereafter, she was discharged from the hospital in good general condition. The QTc prolongation was considered to be related to chloroquine, and pharmacokinetic interaction between lopinavir/ritonavir and umifenovir.

Zhu S, et al. QTc prolongation during antiviral therapy in two COVID-19 patients. *Journal of Clinical Pharmacy and Therapeutics* : 2020. Available from: URL: <http://doi.org/10.1111/jcpt.13183>

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