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Risk of bradycardia with lopinavir/ritonavir in COVID-19 patients

Treatment with lopinavir/ritonavir (LPV/RTV; Kaletra) in elderly patients with COVID-19 may increase the risk of bradycardia, according to findings of a prospective French study published in *Circulation: Arrhythmia and Electrophysiology*.

During the first month of the COVID-19 outbreak in France, 41 patients with a positive nasopharyngeal swab for COVID-19 received LPV/RTV (200mg/50mg) twice daily for 10 days, and underwent 24-hour haemodynamic monitoring.

Bradycardia (heart rate <60 bpm for >24h) was reported in 22% of patients. Eight out of nine cases of bradycardia were sinus bradycardia and one was third-degree atrioventricular block. Bradycardia occurred at least 48h after the initiation of LPV/RTV in all cases, and resolved after the drug was discontinued or the dosage was reduced; LPV//RTV was therefore considered causal.

Patients who developed bradycardia were older than those without bradycardia (73 vs 62 years; p=0.009), had higher plasma RTV concentrations at 72h (1249 vs 652 ng/ml; p=0.036), and had a significantly lower lymphocyte count (p=0.006).

"Our results suggest that RTV plasma overdose in elderly critically ill patients may increase the risk of bradycardia," said the investigators. "Bradycardia could be a sign of severe cardiological or neurological impairment since it is associated with lymphopenia that seems to reflect the severity of COVID-19 infection," they commented, "Intensivists should be aware of this potential side effect in order to closely monitor LPV/RTV plasma levels notably in elderly patients".

Beyls C, et al. Lopinavir-ritonavir Treatment for COVID-19 Infection in Intensive Care Unit: Risk of Bradycardia. Circulation: Arrhythmia and Electrophysiology : 9 Jul 2020. Available from: URL: https://doi.org/10.1161/CIRCEP.120.008798