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Darunavir-Cobicistat versus Lopinavir-Ritonavir for COVID-19 Pneumonia: Qatar's Experience

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ABSTRACT

Background: Coronavirus Disease 2019 (COVID-19) was first discovered in China and resulted in a pandemic crisis.[1,2] Many agents were investigated with inconclusive outcomes.[3] This study was conducted to compare the efficacy and safety outcomes of darunavir-cobicistat versus lopinavir-ritonavir in the treatment of patients with COVID-19.

Methods: This retrospective, multicenter, observational study was conducted on adult patients hospitalized in COVID-19 facilities in Qatar. Patients were included if they had pneumonia and received darunavir-cobicistat or lopinavir-ritonavir for at least three days as part of their COVID-19 treatment. Data were collected from patients' electronic medical records. The primary outcome was a composite endpoint of time to clinical improvement and/or virological clearance. Data were analyzed descriptively and inferential statistics were applied at alpha level of 0.05.

Results: A total of 400 patients' medical records were analyzed, of whom 100 received darunavir-cobicistat and 300 received lopinavir-ritonavir. The majority of patients were male (92.5%), with a mean (SD) time from symptoms onset to start of therapy of 7.57 days (SD 4.89). Patients who received lopinavir-ritonavir had a significantly faster time to the primary composite endpoint of clinical improvement and/or virological clearance than patients who received darunavir-cobicistat (4 days [IQR 3-7] vs. 6.5 days [IQR 4-12]; HR 1.345 [95%CI: 1.070−1.691], p = 0.011) [Figure 1]. Patients who received lopinavir-ritonavir had a significantly faster time to clinical improvement (5 days [IQR 3-8] vs. 8 days [IQR 4-13]; HR 1.520 (95%CI: 1.2−1.925), p = 0.000), and slower time to virological clearance than those who received darunavir-cobicistat (25 days [IQR 15-33] vs. 21 days [IQR 12.8-30]; HR 0.772 (95%CI: 0.607-0.982), p = 0.035) [Figure 2]. No significant difference in adverse events incidence or severity was observed.

Conclusion: In patients with COVID-19, early treatment with lopinavir-ritonavir was associated with faster time to reach the primary composite endpoint of clinical improvement and/or virological clearance than treatment with darunavir-cobicistat. Future trials are warranted to confirm these findings.

Keywords: Darunavir-Cobicistat, Lopinavir-Ritonavir, COVID-19, Antiviral Therapy, Coronavirus

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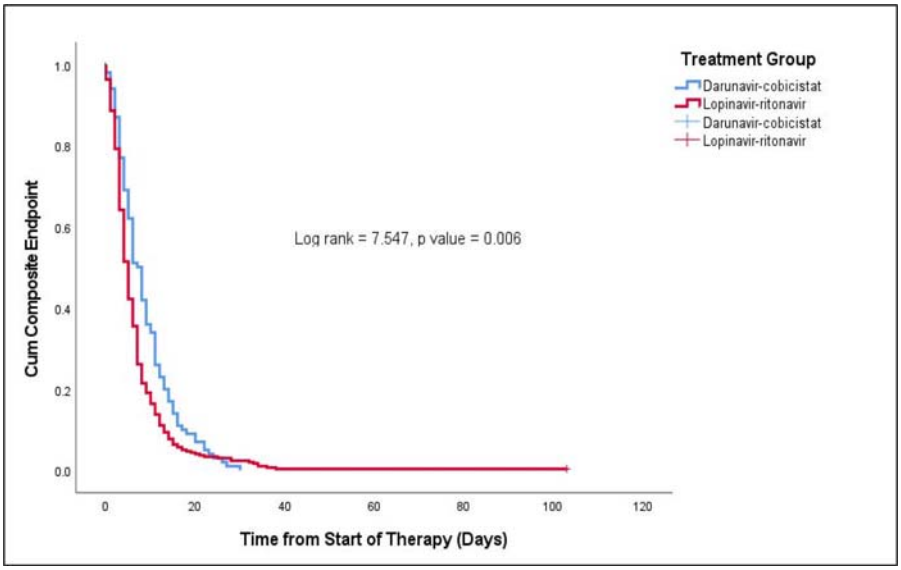

Figure 1. Kaplan-Meier curve for the time to first composite endpoint of clinical improvement and/or virological clearance

Ethical approval/IRB statement: The study was approved by the Institutional Review Board at Hamad Medical Corporation (HMC) Medical Research Center (MRC# 05-069) and registered at ClinicalTrials.gov (NCT04425382). The study was granted a waiver of documentation of consent, in which research information sheets were provided to patients/family members for prospective data collection.

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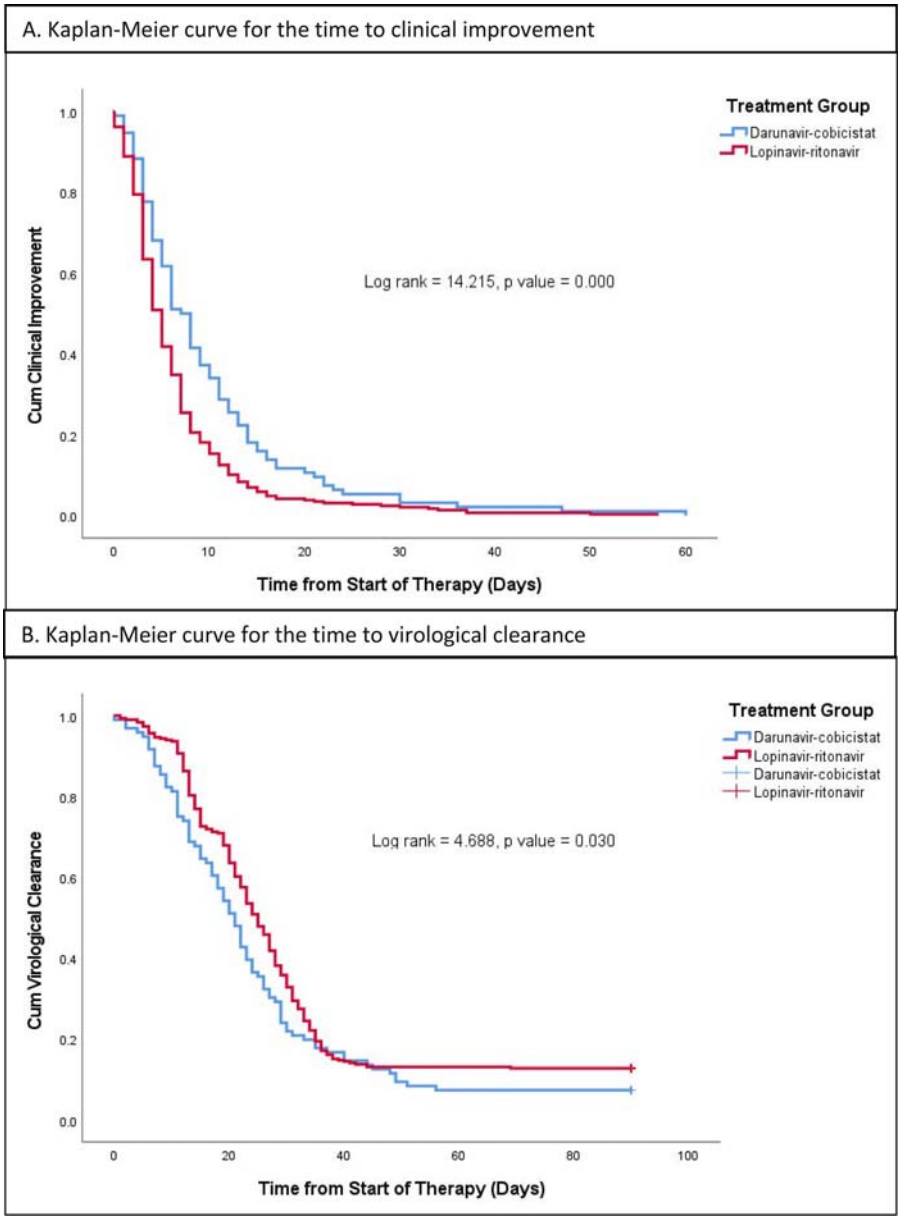

Figure 2. Kaplan-Meier curves for the time to (A) time to clinical improvement; (B) time to virological clearance.

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