Association of Remdesivir Treatment with Long-Term Mortality after COVID-19 Hospitalization

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Abstract

Background: Effectiveness of remdesivir (RDV) treatment on short-term mortality and other outcomes has been well-studied, yet the impact of RDV on long-term outcomes is less well-known. The objective of this study was to determine if inpatient RDV use in survivors of COVID-19 hospitalization is associated with reduced mortality after discharge.

Methods: This is a retrospective observational cohort study of patients hospitalized with COVID-19 between November 2020 and October 2022 in three health systems in Colorado and Utah. Real-world data were identified from electronic health records and state-level vaccination and mortality records. Our primary cohort were patients hospitalized with COVID-19, either treated or not treated with RDV, who survived to hospital discharge. Unadjusted and adjusted Cox proportional hazard models were used to estimate the hazard ratio of all-cause mortality following hospital discharge stratified by inpatient RDV use. Sensitivity analyses included propensity-matching the primary cohort with in-hospital mortality as a competing risk. Secondary outcomes, including hospital and ED readmissions respectively, within 28 days after index hospitalization discharge, were also evaluated using Cox proportional hazard models.

Results: The primary cohort consisted of 9760 patients who survived index hospitalization and had between 6 and 29 months of post-hospital follow up. Of the primary cohort, 4771 (48.8%) were treated with inpatient RDV, inpatient RDV was associated with a decreased mortality hazard (aHR 0.73; 95% confidence interval (CI) 0.61-0.87) among survivors with up to two and a half years of follow-up. Results from a sensitivity analysis using in-hospital mortality as a competing risk were similar to the primary model (aHR 0.76; CI 0.63-0.92). RDV treatment was also associated with decreased re-hospitalization (aHR 0.77; CI 0.67-0.89) and ED readmission rates (aHR 0.79; CI 0.67-0.92). Most subgroups appear to benefit from RDV, with possible exceptions for patients infected during the first Omicron wave, having received at least 1 vaccine dose, and those not requiring supplemental oxygen during index hospitalization.

Conclusions: In this real-world analysis of three large health systems in Colorado and Utah, RDV use was associated with decreased long-term mortality among survivors of initial COVID-19 hospitalization. Inpatient RDV treatment may provide a mortality benefit after COVID-19 hospitalization.