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LETTER TO THE EDITOR

Therapeutic Apheresis and Dialysis

WILEY

Remdesivir use in COVID-19 patients with end-stage kidney disease on intermittent hemodialysis: An absolute contraindication?

Dear Editor:

Remdesivir and its active metabolite GS-441524 are primarily excreted by the kidneys. Sulfobutylether-β-cyclodextrin sodium salt (SBECD), which is an excipient in remdesivir, is also cleared by the kidneys and accumulates in patients with decreased kidney function. Studies evaluating remdesivir use in COVID-19 patients excluded patients with eGFR <30 ml/min per 1.73 m^2 and end-stage kidney disease (ESKD) given the fear of accumulation of SBECD and remdesivir's active metabolites. At present, the Food and Drug Administration (FDA) advises against using remdesivir in this patient population unless the potential benefits outweigh the risks.

We present a case where we safely used remdesivir in a COVID-19 patient with ESKD. A 50-year-old female with a past medical history of hypertension, diabetes mellitus, and ESKD on hemodialysis presented with worsening shortness of breath. Imaging showed ground glass pulmonary infiltrates. She tested positive for COVID-19 by nasopharyngeal polymerase chain reaction (PCR). On presentation, she was not hypoxic and had normal arterial blood gas results. However, her respiratory status rapidly deteriorated, becoming hypoxic requiring 6 L of oxygen supplementation on the first day of admission. Treatment with dexamethasone 6 mg per RECOVERY trial was initiated. Remdesivir was not started initially given the patient's ESKD status. Her oxygen requirement continued to increase despite 5 days of treatment with dexamethasone. A careful review of the published literature did not show ESKD to be an absolute contraindication for remdesivir use. After conducting multidisciplinary conversations, we decided to initiate remdesivir while maintaining her inpatient hemodialysis schedule and closely monitoring her kidney and liver function. Soon after the initiation of remdesivir, the patient's respiratory status started to improve, and she was subsequently weaned off supplemental oxygen. She completed a 5-day course of remdesivir and was ultimately discharged home. No signs of remdesivir toxicity or significant alterations in liver function tests were observed.

A pharmacokinetic study observed no significant accumulation of remdesivir or GS-441524 in patients receiving intermittent hemodialysis [1]. Ackley et al evaluated remdesivir use in 40 patients with an estimated creatinine clearance (eCrCl) of <30 ml/min and did not identify a significantly increased risk of acute kidney injury or liver function abnormalities in patients receiving remdesivir in this population [2]. Aishwarya et al studied 48 dialysis patients which showed that a limited duration of remdesivir treatment (5–10 days) was safe and additionally resulted in a shorter duration of hospitalization [3]. A nationwide study in Japan of 1010 dialysis patients concluded that treatment with remdesivir might be effective in shortening the duration of hospitalization and improving overall survival in patients with COVID-19 [4].

Our case and others support the hypothesis that ESKD may not be an absolute contraindication for the use of remdesivir in COVID-19 patients and we may be withholding a potentially helpful treatment for COVID-19 in this particularly vulnerable group. However, there is no conclusive data on the safety and pharmacokinetics of remdesivir use in these patients. Therefore, further research involving individuals with kidney disease and those on kidney replacement therapy is needed to better understand the safety and mortality advantages of remdesivir in this patient population.

CONFLICT OF INTEREST

There is no conflict of interest to disclose.

Issa Haddad[1]
Priyal Agarwal[1]
Mohamed Hassanein[2]

[1]*Department of Internal Medicine, Michigan State University, Lansing, MI, USA*

[2]*Department of Nephrology, University of Mississippi Medical Center, Jackson, MS, USA*

Correspondence
Issa Haddad, Internal Medicine, Michigan State University, 1215 E Michigan Ave, Lansing 48912, MI, USA.
Email: haddadissa93@hotmail.com

ORCID

Issa Haddad https://orcid.org/0000-0001-7784-439X

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