

## Case report

### Severe COVID-19 infection in post renal transplant recipients; a single centre report

#### Abstract

Kidney transplant recipients are immunocompromised and have been under the spotlight during the COVID-19 pandemic. In our ICU 27.7% of patients received remdesivir as compared to the previous study in which no remdesivir therapy was administered. We did not report any deterioration in renal function secondary to its administration but improved outcome in patients administered the same. Survival rates of patients are thus higher in our subset (53.6%), which included patients with only severe disease.

Key Words: COVID-19, Post Renal transplant, Intensive care unit, Remdesivir

#### Introduction

Kidney transplant recipients are immunocompromised and have been under the spotlight during the COVID-19 pandemic. We would like to report the demographic profile, outcome and the management strategies adopted in post renal transplant recipients admitted with severe COVID-19 infection in the intensive care units of our tertiary care referral center. The first wave in India was prolonged but registered a low number of confirmed cases/day/million inhabitants in comparison to other countries.<sup>[1]</sup> The second wave of corona started during the first week of March 2021 in India and was characterized by a sudden upsurge of confirmed cases (4,00,000/day), which was assumed to be due to the emergence of new SARS-CoV-2 variants, i.e., B.1.617.1 and B.1.617.2 during April–May 2021. The Omicron variant of COVID-19 emerged in November 2021, but did not lead to a high infectivity or fatality in our country. In this report we have thus included data of patients admitted in our dedicated COVID ICU from April 2020 to June 2021. Out of a total of 900 patients; 18 were post renal transplant recipients. The mortality in this subset was 44.4% in comparison to a mortality of 60% in the non-transplant group in the first wave in our center.<sup>[2]</sup>

#### Case presentation

All patients were live related allograft recipients and in all patients' antimetabolites and calcineurin inhibitors were stopped as all had severe COVID infections. Injection methylprednisolone 20 mg twice daily was administered to all; 55.5% were managed with invasive mechanical ventilation and remaining were managed with non invasive ventilation methods. Majority of patients were males (n=13). Percentage of post renal transplant candidates with pre-admission graft dysfunction was 77.8% and four of them were on maintenance hemodialysis. Acute on chronic renal failure was reported in 71.4% (n=10) ; however incidence of AKI in remaining patients with good pre-admission graft function was 25% (n=1). Hypertension (61%; n=12) and diabetes (50 %; n=9) were the most common comorbidities. The most frequent clinical presentations on admission were fever (94.4%) and cough (83.3%). Baseline demographic and laboratory parameters of patients are summarized in Table 1.

## **Discussion and conclusion**

Categorization of COVID-19 positive post renal transplant patients as mild, moderate and severe has been done as per guidelines of Ministry of Health and Family Welfare,<sup>[3]</sup> India in a previous observational study published by Bhandari et al.<sup>[4]</sup> The authors have reported mortality rate of 100% in patients with severe disease(n=5). Full recovery has been reported in patients with mild (n=10) and moderate (n=5) disease. In their study the authors have administered Hydroxychloroquine (HCQ) to 75% of the patients (n=15), azithromycin to 45%(n=9) and convalescent plasma therapy to 25% of patients (n=5). Survival rates of patients are higher in our subset (53.6%), which included patients with only severe disease. None of the above therapies were used in our set up as there is no evidence for any clinical benefits with the same and a higher mortality with their use in the study by Bhandari et al<sup>[4]</sup> could indicate an adverse effect of the same in post transplant recipients.<sup>[5]</sup>

There is evidence that remdesivir shortens the time to recovery in adults who were hospitalized with COVID-19<sup>[6,7]</sup> but there is controversy regarding its use in post renal transplant recipients.<sup>[8,9]</sup> In our ICU 27.7% of patients received remdesivir as compared to the previous study in which no remdesivir

therapy was administered. We did not report any deterioration in renal function secondary to its administration but improved outcome in patients administered the same. Extrapolation of the results of this report to other centers cannot be done as the sample size is very small but a multi-centric study involving a large population of renal transplant recipients is needed for a better understanding of the pathogenesis of the disease in this subset of patients.

**Table 1: Demographic, clinical and biochemical parameters**

<b>Demographic and clinical details</b>	
Age (in years)	41(36.2-51.7)
Months since transplant	72 (66-120)
<b>Biochemical parameter on admission to ICU</b>	
CRP mg/L	89.5 (55.75-122.1)
Ferritin ng/ml	1298 (508.7-3246)
LDH U/L	441.5 (291.5-565)
D- dimer ng/ml	1294.5 (686-4128.7)

All values expressed as median (IQR)

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