

# Coronavirus disease 2019 in HIV-infected Solid Organ Transplant Recipients: A Case Series

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## Background

- Coronavirus disease 2019 (COVID-19) is associated with increased mortality and morbidity in immunosuppressed patients
- Those with HIV are not at risk for severe disease inpatient compared to HIV-negative patients
- Data on management and outcomes in HIV-infected solid organ transplant (SOT) recipients is lacking

## Methods

- Single center, retrospective case series of HIV-infected SOT recipients diagnosed with COVID-19 by nasopharyngeal reverse transcriptase-polymerase chain reaction (RT-PCR)
- Time period between April to August 2020
- All patients had anti-retroviral therapy (ART) induced HIV viral load suppression at the time of diagnosis

**Table 1: Characteristics of HIV-infected SOT recipients with COVID-19**

Variable	Patients N = 5 (%)
<b>Demographics</b>	
Age, median (range)	39 (27-62)
Gender, Male	3 (60%)
Race, African American	4 (80%)
<b>Comorbidities</b>	
Hypertension	4 (80%)
Diabetes Mellitus	1 (20%)
Overweight (BMI >25)	3 (60%)
<b>Transplanted Organ</b>	
Kidney	3 (60%)
Liver	1 (20%)
Heart	1 (20%)
Time from transplant to diagnosis (days), median (range)	232 (63-1502)
<b>Exposure</b>	
Community	4 (80%)
Nosocomial	1 (20%)
<b>Laboratory values at the time of diagnosis, median (range)</b>	
White blood cells, cells/ $\mu$ L	6 (4.8-15.8)
Creatinine, mg/dl	1.8 (1.4-5.6)
C-reactive protein, mg/dL*	3.9 (1-34.5)
Ferritin, ng/mL*	1380 (867-1606)
Lactate dehydrogenase, U/L	646 (321-758)
CD4 count, cells/ $\mu$ L, at baseline	740 (51-1306)
CD4 count, cells/ $\mu$ L, on diagnosis	83.81 (36.2-200)
CD4 count, cells/ $\mu$ L, at follow-up	405 (286-778)
<b>Radiographic findings</b>	
Abnormal Chest-Xray; Interstitial opacities	3 (60%)
<b>Data presented as absolute number (percentage), unless specified otherwise.</b>	
<b>Abbreviations: BMI, body mass index</b>	

**Table 2: Management of HIV-infected SOT recipients with COVID-19**

Variable	Patients N = 5 (%)
<b>Management</b>	
<b>Maintenance Immunosuppression</b>	
Tacrolimus	4 (80%)
Sirolimus	1 (20%)
Mycophenolate Mofetil	5 (100%)
Prednisone	4 (80%)
<b>ART Regimen</b>	
Abacavir + Dolutegravir + Lamivudine	2 (40%)
Emtricitabine + TAF + Dolutegravir	2 (40%)
Emtricitabine + TAF + Dolutegravir + Ibalizumab	1 (20%)
<b>Immunosuppression</b>	
Reduction in immunosuppression	5 (100%)
Mycophenolate mofetil held	4 (80%)
Mycophenolate mofetil dose reduction	1 (20%)
<b>Investigational treatment given</b>	
Hydroxychloroquine	2 (40%)
Tocilizumab	1 (20%)
Remdesivir	1 (20%)
Dexamethasone	1 (20%)
<b>Outcomes</b>	
Overall Survival	4 (80%)
Overall Mortality	1 (20%)
Graft Loss	2 (40%)
Secondary Infections	3 (60%)
Time to SARS-CoV-2 PCR negativity (days), median (range), (n=3)	25 (20-56)
<b>Data presented as absolute number (percentage), unless specified otherwise.</b>	
<b>Abbreviations: ART, antiretroviral therapy; TAF, tenofovir alafenamide</b>	

## Results

- 5 consecutive patients were identified: 3 kidney transplants, 1 heart transplant and 1 liver transplant
- Median time of follow up was 75 (range, 14-205) days
- Overall, 4 (80%) survived, 1 (20%) died, 1 (20%) kidney transplant recipient had biopsy- proven acute T-cell mediated rejection 9 days after diagnosis with subsequent graft loss at follow up
- Three patients had a negative SARS-CoV-2 RT-PCR at a median of 25 (range, 20-56) days from diagnosis

## Conclusion

- We report poor outcomes in this unique small cohort of HIV-infected SOT recipients
- It is extremely important to balance decreasing immunosuppression and clinical monitoring of graft function to avoid graft loss
- Further studies are needed to determine the cumulative effect of HIV infection and organ transplant status on the severity of COVID-19