

COVID-19 Infection in Pregnancy with Human Immunodeficiency Virus: Case Series

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OBJECTIVE

The effects of COVID-19 on patients with HIV have not been well studied extensively. Knowing the effects of COVID-19 disease in vulnerable populations, like pregnant patients with HIV, can help us in obtaining good clinical outcomes and prevent possible maternal morbidity and mortality.

DISCUSSION

Contradicting theories were observed in studies on COVID-19 and PLWH. Some suggested that HIV infection can increase the risk of having a poorer course of COVID-19 because of the abnormal immune response but some, due to the mild immunosuppression and the possible protection from ART, believed that HIV patients may show a milder presentation. Based on the clinical course of our index cases, which was also supported by several studies, it showed that the clinical presentation, levels of inflammatory markers, and course of COVID-19 disease were similar for the general population and in PLWH. Current evidence also showed that the risk of disease severity is dependent on the chronic medical conditions commonly present in PLWH like cardiovascular diseases, chronic lung disease, and diabetes. Our index cases can somehow possibly benefit from the lymphopenia caused by HIV infection and the immunomodulatory effects of Tenofovir, but these assumptions need to be supported by more research and more randomized clinical trials.

CASE PRESENTATION

This paper presents four cases of HIV pregnant patients with COVID-19 co-infection. Three were asymptomatic while the remaining one had mild symptoms (cough, colds, and ageusia). All of them were on anti-retroviral therapy (ART): A tenofovir-based regimen. Their CD4 count levels were within acceptable levels (316-950 cell/mm³) and a majority of them were virally suppressed. All of them had good clinical outcomes.

CONCLUSION

Several studies about HIV and COVID-19 have been published but there is still no consensus on how HIV infection affects the risk of having COVID-19 infection and how HIV influences its clinical course. It was shown in the four index cases that there is no difference in COVID-19 severity and clinical course between persons living with HIV (PLWH) and HIV-negative patients, which was also supported by several clinical studies. There is also not enough evidence to conclude that there is a higher prevalence of COVID-19 among PLWH. Further investigation into the relationship between COVID-19 outcomes and CD4+ T cell count, HIV viral load, ART, and the use of Tenofovir is warranted.

Table 1. Demographics and clinical characteristics at admission of four cases with HIV and COVID 19.				
	Case 1	Case 2	Case 3	Case 4
Demographics and Baseline HIV Status				
Age (years)	27	28	22	22
OB score	G4P2 (2012)	G2P1 (1001)	G3P2 (1102)	G2P1 (1001)
AOG on admission	38 4/7	37 weeks	37 1/7	37 5/7
Comorbidities	None	None	Ameria; Poor obstetric history (1 preterm delivery)	Latent syphilis, treated
HIV status				
Year of HIV diagnosis	2018	2019	2019	2018
Last CD4 cell count	343	950	338	316
HIV viral load at or Before admission	Undetectable	Undetectable	Undetectable	Not done
ART-regimen before admission	Lamivudine 300mg + Tenofovir 600mg/tab + Efavirenz 300mg	Lamivudine 300mg + Tenofovir 600mg/tab + Efavirenz 300mg	Lamivudine 300mg + Tenofovir 600mg/tab + Efavirenz 300mg	Tenofovir 300mg + Lamivudine 300mg + Dolutegravir 50mg /tab
Year started	2019	2019	2019	2019 (only for 3 months), resumed 2021
Clinical findings on admission				
Duration of symptoms, days	None	None	26 weeks AOG; 4 days (Cough, colds, and ageusia)	None
Symptoms and vital signs				
Temperature (degC)	36.1	36.2	36.5	35.6
Symptoms	None	None	None	None
Blood pressure (mmHg)	130/80	121/81	110/80	137/77
Respiratory rate (breaths per minute)	20	20	20	20
Heart rate (beats per minute)	99	83	120	76
Chest x-ray findings	Findings suggestive of pneumonia.	Not requested	Not requested	Not requested
O2 saturation on room air	99%	97%	98%	99%
Laboratory results				
WBC (cells per 10 ⁹ /L)	15.70	9.70	8.50	11.00
Lymphocytes (cells per 10 ⁹ /L)	9	23	21	18
Platelets (cells per 10 ⁹ /L)	187	383	227	324
LDH (U/L)	195	Not requested	Not requested	Not requested
C-reactive protein (mg/L)	<6	Not requested	Not requested	Not requested
D-dimer (ng/mL)	Not requested	Not requested	Not requested	Not requested
Ferritin (ng/mL)	Not requested	Not requested	Not requested	Not requested
Procalcitonin (ng/mL)	<0.05	Not requested	Not requested	Not requested
Severity of the infection at admission	Asymptomatic	Asymptomatic	T/C COVID-19 recovered	Asymptomatic

Table 2. Treatment and outcomes of four cases with HIV and COVID-19.				
ART	Lamivudine 300mg + Tenofovir 600mg/tab + Efavirenz 300mg	Lamivudine 300mg + Tenofovir 600mg/tab + Efavirenz 300mg	Lamivudine 300mg + Tenofovir 600mg/tab + Efavirenz 300mg	Tenofovir 300mg + Lamivudine 300mg + Dolutegravir 50mg /tab
Other antiviral treatments	None	None	None	None
Other antibiotics	None	None	None	None
Admitted to an intensive care unit	No	No	No	No
Invasive or non-invasive mechanical ventilation	No	No	No	No
Corticosteroids or Tocilizumab	No	No	No	No
Delivery				
Mode of delivery	Primary Cesarean section	Repeat Cesarean section	Repeat Cesarean section	Repeat Cesarean section
If Primary CS, indication:	Relative maternal indication (HIV and COVID-19 confirmed)	Scarred uterus	Scarred uterus	Scarred uterus
Delivery outcome	Term, 38 weeks by PA, male, AGA, AS 9&9	Term, 37 weeks by PA, female, AGA, AS 9&9	Term, 37 weeks by PA, male, AGA, AS 9&9	Term, 40 weeks by PA, male, AGA, AS 9&9
RT-PCR result of the baby	Negative	Negative	Not done	Negative
Length of hospital stay	3	3	5	4
Other	-	-	Total Antibody Test - Reactive	-