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LETTER TO THE EDITOR

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COVID-19 in three people living with HIV in the United Kingdom

To the Editor,

We would like to report the clinical characteristics of three people living with HIV (PLWH) in the United Kingdom within the context of coronavirus disease-2019 (COVID-19). Our institution serves a population of 500 000 with a prevalence of HIV at 0.34%. At of the time of writing, 5th June 2020, only three PLWH tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on nasopharyngeal swab specimen using real-time reverse transcriptase-polymerase chain reaction have required admission to hospital. These account for 0.43% of total COVID-19 admissions to our hospital where the overall mortality rate is currently 27%. There are scarce data available on PLWH and COVID-19 and although our case series is small, it may be relevant.

We treated three Black patients: two male and one female. One male patient required intubation soon after admission and died in the intensive care unit (ITU) while the other two patients required continuous positive airway pressure and were subsequently discharged in a good condition. Preadmission CD4 counts varied from 50/mm^3 to 890/mm^3 and each patient was prescribed different antiretroviral therapy (ART) regimens, none of which contained lopinavir-ritonavir. Two of the regimens contained tenofovir which has theoretical antiviral activity.[1,2] They all remained on preadmission ART regimens in accordance with guidance from the British HIV Association.[3]

Patient 1 was a 62-year-old polymorbid Nigerian male with risk factors for poor outcomes in COVID-19. He had received a renal transplant, was immunocompromised from tacrolimus and mycophenolate treatment, and also had type 2 diabetes (T2DM) and hypertension. He was intubated and ventilated on ITU and died from multiorgan failure precipitated by COVID-19 pneumonitis. A high mortality rate has been associated with transplant patients infected with COVID-19 who require hospitalization[4] and this, alongside other comorbidities, all of which are cited as poor prognostic markers, likely contributed to death rather than HIV status. Patient 2, a 46-year-old Jamaican male with glucose-6-phosphate dehydrogenase (G6PD) deficiency, had been ART naïve until 5 days before admission after he had been lost to follow-up since diagnosis in 2013. With a CD4 count of 50/mm^3 and a viral load more than 1 million/mL, in the setting of COVID-19 infection, it was felt likely he had added Pneumocystis carinii pneumonia and this was later supported by positive serum beta-D-glucan. He was treated with atovaquone in view of G6PD deficiency and had a good outcome. Patient 3, a 57-year-old Zimbabwean female with a history of stroke, T2DM, hypertension, and obesity, was a nurse in an older persons care home with confirmed COVID-19 infections at the time of admission. She also was covered for added bacterial infection and was discharged in a good condition (Table 1).

We suggest that HIV alone does not result in amplified risk of infection or adverse outcomes in COVID-19 infection when compared with the general population. This is supported by case series from both Germany and America, where no excess morbidity or mortality was found among patients with HIV.[5,6] Furthermore, Karmen-Tuohy et al[7] compared a cohort of HIV-positive patients to a matched non-HIV cohort and concluded that HIV coinfection did not significantly impact presentation, hospital course or long-term outcomes. Patient 2 of our series, who in retrospect fulfilled AIDS defining criteria, did not suffer a more severe disease course—the assumption being that even these patients are not necessarily at heightened risk. As HIV is seen in an increasingly aging population, these patients may have comorbidities which independently augment the risk of adverse outcomes, and therefore, any conclusions drawn should be cautious. We postulate that patients with HIV may even be somewhat protected if established on ART.[8] All of the above hypotheses need to be validated by further research with greater patient numbers.

TABLE 1 Demographics, clinical characteristics, treatment, and outcomes of three patients with HIV and COVID-19 are demonstrated

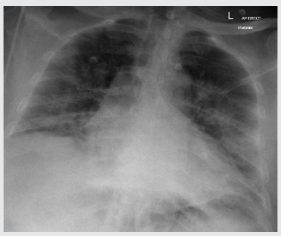
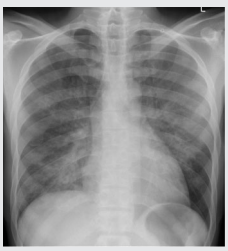
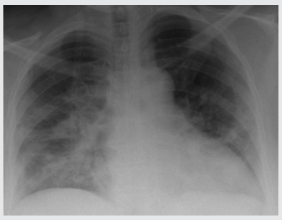
	Patient 1	Patient 2	Patient 3
Demographics			
Age, y	62	46	57
Sex	Male	Male	Female
Ethnicity	Nigerian	Jamaican	Zimbabwean
Comorbidities	Renal transplant 2012 T2DM on insulin Hypertension Latent tuberculosis	Smoker G6PD deficiency	Hypertension T2DM Obesity Stroke 2007 Graves disease-in remission Reflux
HIV status			
Year of HIV diagnosis	2002	2013	2012
CD4 cell count at or before admission (cells per μL)	180	50	890
CD4:CD8 ratio at or before admission	1.9	0.2	0.6
HIV viral load at or before admission (copies per mL)	Not detected	>1 million	Not detected
ART regimen on admission	Raltegravir 400 mg BD Lamivudine 50 mg OD Abacavir 600 mg OD	Truvada 200/245 OD Dolutegravir 50 mg OD	Descovy 200 mg/25 mg Nevirapine 400 mg OD
Clinical findings on admission	4	19	10
Duration of symptom, d			
Chest X-ray on admission			
Symptoms and initial observations	Dyspnea and a dry cough	Productive cough and fevers	Dyspnea, a dry cough, fevers, anorexia and headaches
Symptoms			
Respiratory rate (breaths per min)	40	18	34
O_2 saturation in room air	85%	95%	92%
Temperature, °C	37.5	37.5	38.6
Blood pressure, mm Hg	164/83	103/72	123/71
Heart rate (beats per min)	132	98	85
Initial laboratory results			
White cell count (cells per 10^6/L)	11.93	8.59	4.31
Lymphocyte (cells per 10^6/L)	0.23	1.13	1.1
Platelets (cells per 10^6/L)	145	293	208
LDH, U/L	532	440	454
CRP, mg/dL	260	51	78
D Dimer, ng/mL	7163	1766	546
Troponin, ng/mL	62	6	8
Ferritin, ng/mL	717	2913	1925

TABLE 1 (Continued)

	Patient 1	Patient 2	Patient 3
Treatment and outcomes			
ART	Not altered	Not altered	Not altered
Other antibiotics	Tazocin Azithromycin Co-trimoxazole	Levofloxacin Atovaquone	Doxycyline Co-trimoxazole
Admitted to ITU	Yes	No	No
Invasive or noninvasive ventilation	Intubated and ventilated	CPAP	CPAP
Corticosteroids	On prednisolone at admission	Prednisolone	No
Length of admission (nights)	8	6	10
Outcomes	RIP	Discharged	Discharged
Additional comments	Tacrolimus and mycophenolate held on admission to ITU, prednisolone continued		

Abbreviations: ART, antiretroviral therapy; COVID-2019, coronavirus disease-2019; CPAP, continuous positive airway pressure; CRP, C-reactive protein; ITU, intensive care unit; LDH, lactate dehydrogenase; RIP, rest in peace; T2DM, type 2 diabetes.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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