

Potential impact of COVID-19 in people living with HIV: experience from previous 21st century coronaviruses epidemics

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Infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), agent of COVID-19, has emerged in December 2019 in Wuhan, China and spread globally on all continents[1]. People living with HIV (PLWH) represent 37.9 million worldwide with substantial proportion of the population in some countries[2]. Notably, South Africa where 1 out of 5 adults lives with HIV, has reported its first COVID-19 case on 05-03-20[3].

Incidence and severity of respiratory virus infection such as influenza is higher in PLWH as compared to HIV-uninfected patients. PLWH have increased risk of hospitalization, more prolonged hospitalization and death following influenza infection[4].

Since the beginning of the 21st century, two other coronaviruses have emerged as a cause of severe respiratory diseases: namely, SARS and MERS-CoV[1].

In order to identify previous clinical studies reporting outcome of PLWH following SARS or MERS-Cov infection, a PubMed search was performed using the MeSH terms "Coronavirus" OR "Middle East Respiratory Syndrome Coronavirus" OR "SARS Virus" AND "HIV" OR « Acquired Immunodeficiency Syndrome ». Large cohort studies of SARS and MERS-CoV infected patients were also reviewed for associated risk factors. References of relevant articles were screened. HIV-infection was not reported as a risk factor in large cohorts of SARS and MERS-CoV infected patients[5–8]. A case of SARS infection in a 30-year old Chinese Man was reported in 2004 in this Journal[9]. The patient was on antiretroviral therapy with lopinavir/ritonavir (LPV/RTV) and tenofovir, had a low CD4 count (134/ μ L) and a detectable viral load (470 copies/ml). The patient was treated with ribavirin and steroids and experienced a mild course, not requiring mechanical ventilation. The authors hypothesized that ART regimen could have influenced the course of the disease. Both in vitro and historical studies suggested a possible antiviral activity of the protease inhibitor LPV/RTV against SARS infection. In a non-randomised study, addition of LPV/RTV to ribavirin was associated with

better outcome as compared to ribavirin alone[11]. Randomised control trials with LPV/RTV are currently ongoing in the treatment of COVID-19[12]. However, recent in vitro and animal studies in the MERS-CoV model indicated that LPV/RTV in combination with IFN- β is inferior to the antiviral agent remdesivir[13].

During the 2003 SARS outbreak, Chen et al. reported that 19 AIDS patients treated for opportunistic infections in the same ward of SARS-infected patients did not develop nosocomial SARS infection despite long stay[10]. This was in contrast with the high rate of infection in health-care workers (HCW) working on the same ward (21%). It could be hypothesized that distinct immune response might have impacted susceptibility to SARS infection. However, no definite conclusion regarding the possible interaction between HIV-infection and SARS can be drawn as exposure to infective viral particles is probably different between HCW and patients.

In summary, the experience from previous coronaviruses outbreaks on the susceptibility and severity of disease in PLWH is scarce. International collaborative studies are warranted in order to characterize the outcome of PLWH with COVID-19. This will facilitate the implementation of future preventive strategies such as immunization.

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