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COVID-19 in patients living with human immunodeficiency virus (HIV) infection: Challenges and way-forward

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SUMMARY Most studies have described worse outcomes with coronavirus disease 2019 (COVID-19) in patients with human immunodeficiency virus (HIV). This has been attributed to COVID-19 associated lymphopenia (resulting in lower CD4 count), higher prevalence of comorbidities (established risk factors for severity in COVID-19) and pre-existing lung damage. The problem has been further aggravated by the lack in the access to routine care in HIV patients due to diversion of resources. In this article, we discuss the impact of COVID-19 on patients with HIV infection.

Keywords COVID-19, HIV, tuberculosis

The clinical spectrum of coronavirus disease 2019 (COVID-19) is diverse and ranges from asymptomatic infection to a life-threatening illness. The severity of COVID-19 has been shown to be significantly associated with diabetes, hypertension, and cardiovascular disease (*1*). It is worthwhile to note that some of these comorbidities are more frequently present in patients living with human immunodeficiency virus infection (PLHIV). COVID-19 is associated with lymphopenia, and therefore, an absolute number of CD4 lymphocytes is also expected to decrease in these patients. Hence, infection with COVID-19 can theoretically reduce CD4 count in PLHIV. A decrease in CD4 count is associated with increased susceptibility to opportunistic infections (*2*). Also, PLHIV may have pre-existing lung damage due to history of opportunistic infections such as tuberculosis. A new COVID-19 infection in these patients with pre-existing lung damage can be associated with higher severity (*3,4*).

Initial studies suggested no increase in adverse outcomes in PLHIV with COVID-19 when compared to COVID-19 patients without human immunodeficiency virus (HIV) infection (*5,6*). However, in a large study from South Africa, poor outcomes were noted in PLHIV with COVID-19 (7). Another study with a large sample size showed worse COVID-19 related outcomes in patients with HIV (*8*). Lower CD4 count was found to be a significant risk factor of mortality in that study (*8*).

The immunosuppression associated with HIV may interfere with antibody response against COVID-19 (*9*). This may have potential implication in surveillance and vaccine effectiveness. Protease inhibitors like lopinavir/ritonavir used in the treatment of HIV were initially suggested to have a beneficial impact on COVID-19 infection. However, published trials have later refuted the role of lopinavir/ritonavir in improving the disease progression and outcomes (*10*).

The economic resources and manpower for HIV care have been shunted to COVID-19 centres. The lockdown imposed at various times has inadvertently affected the access to HIV testing and care. This, coupled with the loss of daily wages of PLHIV or their caretakers, has further added fuel to the problem. Regular psychosocial counselling and public awareness campaigns held at HIV clinics for mitigating the social stigma has also come to a halt. This may have contributed adversely towards the mental well-being of PLHIV.

Ensuring adequacy of drug supplies at the HIV centres and involvement of local/regional stakeholders for the delivery of the drug is paramount. It is vital to ensure the follow-up of PLHIV in quarantine or isolation to check their adherence to medications. They should also be monitored for drug toxicities and complications. Use of telemedicine (locally used mobile applications/ messaging services) will also be helpful to ensure retention in care. There is a need to facilitate the continuum of health care delivery services to PLHIV during the COVID-19 pandemic.

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