

This research summary provides an overview of findings from a recently published study related to clinical outcomes in people with HIV and COVID-19.

Härter, G., Spinner, C., Roeder, J., Bickel, M., Krznic, I., Grunwald, S., Schabaz, F., Gillor, D., Postel, N., Müller, M., Römer, K., Schew, K., Hoffman, C. (2020). COVID-19 in people living with human immunodeficiency virus: a case series of 33 patients. *Infection*, doi.org/10.1007/s15010-020-01438-z

A recent study by Härter and colleagues 2020, describes the COVID-19 symptoms and clinical outcomes of 33 people living with HIV (PLWH) in Germany. The authors note that with SARS-CoV-2 infections reaching nearly 3 million cases by April 27, 2020, the rapid occurrence of COVID-19 cases in PLWH is expected. The researchers also note that several comorbidities have been identified as risk factors for severe COVID-19 disease and death, and there has been concern that HIV may increase the risk of severe COVID-19 disease outcomes. Currently there is limited and contradictory data in relation to HIV and COVID-19 clinical outcomes. SARS-CoV2 has been shown to cause temporary immune deficiency, leading to speculation that PLWH who contract COVID-19 will have higher rates of morbidity and mortality, but there is also some speculation that 'defective cellular immunity in PLWH could paradoxically be protective against severe COVID-19 disease', additionally 'HIV protease inhibitors are thought to inhibit the 3 chymotrypsin-like protease of coronaviruses'. The research team conducted a retrospective analysis of all cases of PLWH with SARS-CoV-2, diagnosed in Germany between March 11 and April 17, 2020.

There were 33 cases, and full data including outcomes data was available for 32. The data examined included age, gender, CD4 count, viral load and use of antiretroviral therapy (ART), clinical symptoms of COVID-19, severity of disease, blood oxygen saturation, critical respiratory failure, and other comorbidities.

The average age in the cohort was 48 years (range 26-82) and 30 of the 33 patients were men. All patients were on ART at the time of COVID-19 diagnosis, 31 were taking nucleoside reverse transcriptase inhibitors (NRTIs), and most ART regimens included tenofovir. Most of the cohort had a CD4 above 500 and 30 of 32 cases had an undetectable viral load. Of the 33 cases, 20 had comorbidities other than HIV. The two cases with a detectable viral load required intensive care treatment and ventilation and one of these patients died. Most of the cases were defined as having mild disease, six cases were classified as critical and one as severe. In total three patients died and 29 had recovered from COVID-19. The three patients who died had specific characteristics that may have played a role in their mortality, one was of older age (82) and had a detectable viral load before COVID-19, one had a low CD4 count and one had several other comorbidities that have already been linked to poor COVID-19 outcomes including diabetes, and hypertension.

Key messages

While the study found a higher fatality rate, a higher number of severe and critical cases, and higher hospitalisation rates when compared to the general population in Germany, and to large US cohort, these higher rates may be explained by an overestimation of mortality and morbidity due to the cohort only including symptomatic cases and the authors also suggest that PLWH might be routinely hospitalised as a precaution regardless of disease severity. The authors conclude that the case series did not support excess morbidity and mortality among symptomatic COVID-19 patients with HIV who had suppressed virus and were taking ART. Additionally, the study did not find any evidence in the cohort of a clinical effect of tenofovir against SARS-CoV-2. The authors conclude that larger studies are needed to investigate the 'protective or deleterious effect of HIV and antiretroviral therapy' in relation to COVID-19.