



Concerns: COVID Evolution

Being on antiretroviral treatment and maintaining an undetectable HIV viral load is key to avoiding prolonged and severe COVID.

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SARS-CoV-2, the virus that causes COVID-19, has the potential to rapidly evolve in people with a weakened immune system. Like HIV, SARS-CoV-2 can evolve quickly, giving rise to multiple new variants, some of which may evade immune defenses and cause more severe illness. SARS-CoV-2 can persist longer in people with compromised immunity, giving it more time to evolve. NIAID researchers analyzed SARS-CoV-2 spike protein genes from 47 HIV-positive and HIV-negative COVID patients in South Africa. They found that people with advanced HIV—as indicated by a CD4 T-cell count below 200—had a median of 47 SARS-CoV-2 variants, and some had more than 100. What’s more, the viral population became more diverse over the course of COVID. In contrast, most HIV-negative people and HIV-positive people with a higher CD4 count had just one major SARS-CoV-2 variant, with little evidence of viral evolution. These findings confirm that being on antiretroviral treatment and maintaining an undetectable HIV viral load is key to avoiding prolonged and severe COVID.

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