

Short Communication: HIV Viral Load Trends During the Coronavirus Disease 2019 Pandemic in a Reference Center for HIV in Rome, Italy

Alessandra Latini,^{1,i} Maria Gabriella Donà,¹ Massimo Giuliani,¹ Martina Pontone,² Carola Ancona,¹
Silvia Foracappa,¹ Aldo Morrone,³ and Mauro Zaccarelli⁴

Abstract

Coronavirus disease 2019 (COVID-19) pandemic has reduced the access of HIV patients to reference centers. However, retention-in-care is critical to maintain adherence to therapy and viral suppression. During lockdown in Italy, our center implemented several measures to ensure HIV-care continuum. To assess whether these efforts were successful, we investigated HIV viral load trend for a 1-year period (September 2019–August 2020), which included lockdown and partial lockdown months in our country. No significant changes overtime in the proportion of undetectable HIV-RNA were observed. Continuity of service made it possible to maintain viral suppression in our patients.

Keywords: HIV, STI, sexually transmitted infections, viral load, COVID-19, retention-in-care, lockdown

Introduction

THE SPREAD OF severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), agent of the coronavirus disease 2019 (COVID-19), required a lockdown to mitigate the pandemic in Italy. From March through to mid May 2020, the Italian government established restrictions in the whole country, including recommendations regarding social distancing, the prohibition of public events, and self-isolation for COVID-19 contacts. People with health problems could still access hospital for medical visits and prescriptions with a form of self-certification, which was needed to pass police checkpoints.¹

During lockdown, some of the international scientific societies suggested to postpone HIV care visits for steady patients and screening for most sexually transmitted infections (STIs), to reduce SARS-CoV-2 spreading.²

Currently, our knowledge concerning whether or not people living with HIV (PLWH) are at a higher risk of severe COVID-19,^{3,4} or whether antiretroviral medications used to treat HIV may be protective against severe COVID-19⁵ is still limited. As a matter of fact, most of the PLWH hospitalized because of SARS-CoV-2 infection were also affected by other comorbidities, including cardiovascular diseases and diabetes. For this reason, several HIV reference services shifted to telemedicine for the remote management of pa-

tients to reduce their possible exposure to SARS-CoV-2.⁶ Nevertheless, clinical observations showed that retention-in-care is a cost-effective strategy to maintain adherence to antiretroviral therapy (ART) and viral suppression, to reduce drug side effects, HIV transmission, and patients' morbidity and mortality.

All these concerns stressed the need to assure HIV-care continuum during the pandemic. The HIV/AIDS Unit of the San Gallicano Dermatological Institute provides care to ~500 HIV-infected patients (for the most part men who have sex with men). The large majority of the patients on treatment at our center show optimal adherence to ART (>95%).⁷ To maintain our patients in HIV-care continuum during lockdown, our center continued to offer PLWH in ART the option of face-to-face visits and HIV-related blood tests, whereas also introducing some operational changes in the admission of patients, drug delivery at home (for ~40% of our patients), and use of teleconsulting services.⁷ Our service remained available for in-clinic visits and treatment for individuals with STI symptoms and continued to perform STI testing to asymptomatic patients.

Materials and Methods

To evaluate whether these changes in clinical assistance during lockdown might have affected care outcomes, the

¹STI/HIV Unit, San Gallicano Dermatological Institute IRCCS, Rome, Italy.

²Microbiology and Virology, San Gallicano Institute, Rome, Italy.

³Scientific Direction, San Gallicano Dermatological Institute IRCCS, Rome, Italy.

⁴Clinical Department, National Institute for the Infectious Diseases Lazzaro Spallanzani IRCCS, Rome, Italy.

ⁱORCID ID (<https://orcid.org/0000-0002-9421-6560>).

trend of HIV-1 viral load (HIV-RNA copies/mL) was investigated during a 1-year period, including September–November 2019 (no-COVID-19 months), December 2019–February 2020 (pre-COVID-19 months), March–April 2020 (lockdown months), May 2020 (partial-lockdown month), and June–August 2020 (post-lockdown months). Changes of HIV viremia by month and quarters were evaluated. Specifically, HIV viral loads performed during the 1-year observation in patients in steady antiretroviral treatment for at least 6 months were recorded. The proportion of undetectable viral loads (HIV-RNA <30 copies/mL) by month was assessed. All the procedures were performed in accordance with the Declaration of Helsinki as revised in 2013.

Results

Overall, 1,233 HIV viral loads from 453 patients were included: 165 patients (36.4%) were tested twice, 230 (50.8%) three times, and 58 (12.8%) four times. In the whole year of observation, 81/1,233 HIV viral loads (6.6%) were detectable, of which 47 (3.8%) were between 30 and 100 copies/mL and 34 (2.8%) beyond 1,000 copies/mL. Fifty-eight detectable HIV viral loads were found in 23 patients (5.1% of the overall study population): 13 patients had two detectable HIV viral loads each, 8 had three detectable viral loads each, and 2 had four detectable HIV viral loads each. Twenty-three patients presented only one detectable HIV viral load in the 1-year observation period. Our center performs follow-up visits and blood tests every 4 months and during lockdown the median interval between HIV viral load tests was 4.5 months (interquartile range: 3–7 months).

The number of viral loads performed monthly, together with the proportion of undetectable HIV viral loads is re-

ported in Figure 1. Overtime, no significant changes were observed in the proportion of undetectable HIV viral loads either by month or by quarter ($p = .268$ and $p = .393$, respectively). During the 2-month lockdown, the proportion of undetectable results remained in line with the previous months, despite the fact that the number of tests performed was lower (viral load testing was postponed for patients in stable suppression who, during teleconsulting, declared to be scared of acquiring SARS-CoV-2 infection by attending the hospital). The sharp increase in measurements in May 2020 ($n = 153$) was due to the rebound of attendees, particularly among stably suppressed HIV patients postponed by the rescheduling of clinical activities during the lockdown. Among these patients, viral loads remained undetectable, in line with previous months. Fewer viral loads were performed in July and August, holiday months in Italy, but the undetectable proportion was similar to the previous months.

Between April and August 2020, 388 patients were tested for SARS-CoV-2 immunoglobulins class G. Seventeen of them resulted positive (prevalence 4.3%, 95% confidence interval: 2.7–6.9).

Discussion

Maintenance of viral suppression in PLWH is critical for health and prevention purposes. Few studies have evaluated the effect of the COVID-19 pandemic on treatment-experienced patients in terms of adherence to antiretroviral treatments.⁶

Little information is available on how COVID-19 is affecting PLWH behaviors and the natural history of HIV infection.^{8–10} In our experience, rescheduling of clinical

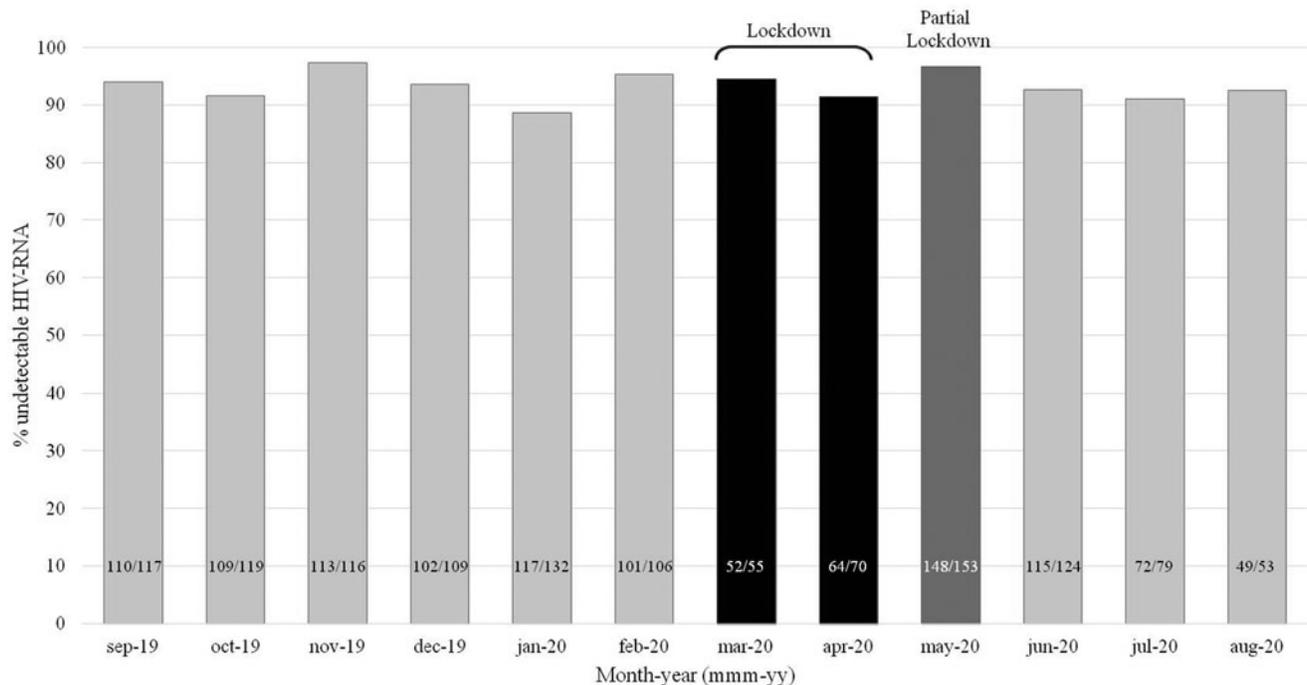


FIG. 1. Proportion of undetectable HIV-RNA by month from September 2019 to August 2020 among the HIV-infected patients of our HIV center in Rome, Italy. The number of undetectable tests over the total number of tests performed by month is also shown. Lockdown and partial lockdown months are indicated.

assistance by our center during the national lockdown⁷ did not seem to affect the efficacy of the HIV-care continuum in terms of maintenance of viral suppression. Indeed, we observed no significant difference in the proportion of undetectable viral loads for the 1-year period either by month or by quarter. Interestingly, over two-thirds of the detectable viral loads were repeatedly observed in a small number of patients (5.1% of the study group), suggesting a relationship between the virological failures and the clinical characteristics of the infection, lifestyle, or low adherence of these patients. In contrast, the steady viral suppression observed during pre-lockdown, lockdown, and post-lockdown periods suggests a good compliance of most of the patients with the rescheduling of clinical activities, the continuity of ART use, and of medical service offered.

This is one of the few studies regarding the trend of HIV viremia in relation to the lockdown. A recent study conducted in San Francisco showed a significant increase in viral nonsuppression due to COVID-19 restrictions and incomplete efficacy of telemedicine in maintaining retention-in-care.¹¹ This discrepancy compared with our findings could be attributed to distinct populations (mainly vulnerable populations, e.g., homeless individuals, in the other study) that would benefit less from telemedicine and drug home delivery. Authors considered it an urgent priority to take measures to counteract the effects of the COVID-19 pandemic on HIV outcomes. The use of telemedicine in selected cases, the systematic review of HIV-RNA results, and ensuring access to medication through home delivery were among the strategies employed by our center. These measures have proven successful for the continuity of care of HIV patients. However, since the large majority of our patients were virally suppressed, our findings may not be representative or generalizable to other settings. We need further evidence that new models of HIV care do not adversely affect patient outcomes.

Authors' Contributions

A.L. and M.Z. conceived the study, interpreted the data, and drafted the article; M.Z. performed the statistical analysis; C.A. and S.F. retrieved the data from the medical records; M.G.D. and M.G. performed data management and interpreted the data; A.M. supervised study conduction; M.P. performed all HIV-RNA measurements; all the authors revised and approved the final version.

Author Disclosure Statement

No competing financial interests exist.

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Address correspondence to:

Alessandra Latini

STI/HIV Unit

San Gallicano Dermatological Institute IRCCS

Via Elio Chianesi 53

Rome 00144

Italy

E-mail: alessandra.latini@ifo.gov.it