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Clinical Outcomes and Prognosis of Patients with HIV and SARS-CoV-2 Co-infection

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Abstract

Dear Editor, I read with interest the review, “Living with HIV in the time of COVID-19: a glimpse of hope” by Adadi et al. published in the Journal of Medical Virology. However, I believe that the conclusions made within this article should be taken with caution as the outcomes of patients co-infected with HIV and SARS-CoV-2 are not definitive and evidence regarding this matter is constantly evolving.

Keywords:

Coronavirus < Virus classification, Human immunodeficiency virus < Virus classification, Infection, SARS coronavirus < Virus classification, Antiviral agents, Anti-retrovirus drug < Antiviral agents

Dear Editor,

I read with interest the review, “Living with HIV in the time of COVID-19: a glimpse of hope” by Adadi et al. published in the Journal of Medical Virology [1]. However, I

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believe that the conclusions made within this article should be taken with caution as the outcomes of patients co-infected with HIV and SARS-CoV-2 are not definitive and evidence regarding this matter is constantly evolving.

Adadi et al. base their conclusions upon a narrow review of only three small case reports of HIV/SARS-CoV-2 co-infection, in which there are only 10 patients considered in total [2-4]. This analysis fails to include the more extensive case series and retrospective reviews which demonstrate uncertain outcomes of HIV/SARS-CoV-2 patients, despite these being published well in advance of their review. These extensive studies have called for further research in order to better understand the risks of COVID-19 among people living with HIV and the impact of antiretroviral therapy on outcomes for these patients [5]. These studies include, but are not limited to: Vizcarra et al., who report 51 HIV patients diagnosed with COVID-19 in Italy [6], Suwanwongse et al., who report 9 HIV/SARS-CoV-2 co-infected patients in the United States [7], Härter et al., who report a case series of 33 HIV/SARS-CoV-2 co-infected patients in Germany [8], Shalev et al., who report 31 HIV/SARS-CoV-2 co-infected patients in the United States [9], Gervasoni et al., who report 45 HIV/SARS-CoV-2 co-infected patients in Italy [10], and several other case reports of HIV/SARS-CoV-2 co-infection across the world published early in the pandemic [11-16]. Some of these comprehensive studies collectively demonstrate that patients with HIV/SARS-CoV-2 co-infection do not always have favorable outcomes. The impact of pre-existing HIV infection on the clinical course of COVID-19 is thus still unclear. Without mentioning these broader studies and contradictory results of outcomes, which are not as heavily constrained by sampling bias and small sample sizes and therefore provide for a more accurate overview of the impact of SARS-CoV-2 in the HIV

population, it is difficult to make valid assumptions and conclusions regarding the prognosis of co-infected patients.

Further, two of the three total cases reviewed by the Adadi et al. have received additional scrutiny in the form of response letters to the editor due to the sampling biases and other study limitations presented alongside the ungeneralizable conclusions [17-19]. The first case mentioned by the authors is a report published by Zhu et al. of a single patient who was found to have HIV/SARS-CoV-2 co-infection in Wuhan, China [2]. This report received criticism due to its lack of patient details regarding sexual history, drug use, blood transfusion, antiretroviral treatment [17]. This report also mentioned that the patient was given an "antigen/antibody combination test for HIV detection" without mentioning why the test was given as the patient was hospitalized for COVID-19, or whether or not the test was repeated. There was no confirmation of HIV diagnosis in this patient, and the antiretroviral treatment regimen mentioned is outside of the standard guidelines for HIV patients [17]. This patient did not receive antiretroviral therapy prior to admission due to the unknown diagnosis of HIV, which contradicts Adadi et al.'s conclusion that "HIV-infected patients under anti-HIV therapy…stand a chance of being cured of COVID-19" [1].

Moreover, there are still controversies surrounding regarding the role of antiretroviral therapy as prevention or treatment for COVID-19. In the report of 51 HIV/SARS-CoV-2 co-infected patients by Vizzcara et al., previous use of antiretroviral therapy in patients with or without COVID-19 had no difference in outcomes [6, 20]. The second report presented by Adadi et al. is a study published by Blanco et al., who report five patients

co-infected with HIV and SARS-CoV-2 in Spain [4]. This study received criticism as it failed to report on the proportion of COVID-19 patients tested for HIV and the study sample included patients only from a single hospital in Spain [19]. Thus, the statements regarding the incidence of COVID-19 in HIV patients provided in this study can be easily misinterpreted and are thus falsely reassuring due to sampling constraints. In their reply, Blanco et al. acknowledged the need for further studies before defining the epidemiological and clinical features of HIV/SARS-CoV-2 co-infected patients [21]. Based on the analysis of these two reports, Adadi et al. failed to assess the methodological and reporting quality of these studies which they utilize to draw conclusions. Thus, Adadi et al.'s statements which falsely provide HIV patients with a "glimpse of hope" after a narrow review of three small studies can be misleading to readers.

During this time of crisis wherein new data regarding COVID-19 is constantly emerging, it is particularly important to carefully monitor and evaluate reports regarding the impact of COVID-19 on immunocompromised and HIV patients. There is still very limited evidence regarding co-infection of HIV/SARS-CoV-2 [20]. This is paired with the reality that universal HIV testing across the world is still non-existent and challenges with COVID-19 testing remain unsolved in many countries, making it difficult to calculate the incidence of these two viral infections occurring simultaneously in patients and generalize conclusions based on the outcomes of this narrow patient population [19]. While some case reports have evidently shown a trend of favorable prognosis in co-infected patients, several others have demonstrated contradictory results. Further studies and meta-analyses are needed before drawing conclusions regarding the clinical

outcomes of SARS-CoV-2 infection in HIV patients. Optimistic reports with unfounded data can inadvertently provide false reassurance and lead to further spread of the virus while further barricading the efforts of public health organizations. It is thus important to carefully account for any biases or limitations within these reports prior to making conclusions regarding the impact of COVID-19 on HIV patients.

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