LETTER TO EDITOR

Response to: Prognostic factors in hospitalized HIV-positive patients with COVID-19: correspondence

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We appreciate the thoughtful comments provided by Lee *et al*., regarding our conclusions about the impact of HIV infection and advanced liver disease on COVID-19 outcomes in HIV-positive adults.

In our nation-wide retrospective analysis, we identified that hospitalizations in Spain during 2020 were significantly more frequent among HIV-negative than HIV-positive adults.[1] This observation was noteworthy because in distinct studies we found that other immunosuppressed patients, including those with solid organ transplants, autoimmune diseases and/or onco-haematological disorders, were admitted more frequently during the first waves of the pandemic.[2–4] Therefore, it became unclear in what extent severe immunodeficiencies and strong immunosuppression related to chemotherapy could prone to more severe COVID-19.[5]

In our study, we postulated that HIV-positive adults were more likely admitted with milder disease than other SARS-CoV-2 positive patients. As a result, the HIV population displayed a better survival rate compared to HIV-negatives. Furthermore, HIV-positives were on average younger and showed a lower number of comorbidities. Therefore, HIV did not significantly entail a higher COVID-19 mortality risk. Although we agree that information on CD4 counts and/or viral load would have had more prognostic value, we did not have access to such information. However, more than 90% of HIV-positive individuals in Spain are on antiretroviral therapy[6] and therefore only a small subset of HIV carriers and those unaware of their infection should have been expected to harbour low CD4 counts and high viral load.

In our study, we identified advanced liver disease as a strong prognostic factor of COVID-19 in-hospital mortality in HIV-positive patients. Given to shared transmission routes, coinfection with viral hepatitis B, C and/or D is more frequent among HIV-positive individuals than in the general population. On the other hand, the rate of high alcohol consumption and liver steatosis due to metabolic abnormalities linked to long-term antiretroviral therapy, would have contributed to an increased rate of liver disease among HIV-positives in our series.[7]

In our study, liver disease severity was not defined according to clinical and laboratory data, such as Child-Pugh or MELD scores. The large public health database we used in our retrospective study only gave us the chance to estimate the Charlson comorbidity index items, that only split out liver disease as mild versus moderate.[8] We considered the latter by baseline liver cirrhosis with or without portal hypertension and/or liver insufficiency. This information should be enough to validate our conclusion.

Despite all the aforementioned considerations, we consider that the large size of our study population, its nation-wide spectrum and the statistical power of the analysis, all make our data valid and clinically relevant. In support of our claim, a recent large study has pointed out liver disease as a major independent predictor of severe COVID-19 in the UK BioBank cohort.[9]

Author contributions

Víctor Moreno-Torres (Conceptualization [equal], Data curation [equal], Formal analysis [equal], Funding acquisition [equal], Investigation [equal], Methodology [equal], Project administration [equal], Resources [equal], Software [equal], Supervision [equal], Validation [equal], Visualization [equal], Writing—original draft [equal], Writing—review & editing [equal]), and

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