



## Letter to the Editor

### Medium- and Long-Term Consequences of SARS-CoV-2 Infection on COPD Patients



To the Director,

We have read with interest the article by Chiner-Vives et al.<sup>1</sup> on the impact of coronavirus disease-2019 (COVID-19) on previous respiratory diseases. As the authors mention, current evidence indicates that chronic obstructive pulmonary disease (COPD) patients are at increased risk of suffering an infection by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) and are more likely to undergo a serious form of the infection requiring hospitalization. However, there is uncertainty about the medium- and long-term consequences of SARS-CoV-2 infection in this population. There are reasons to speculate that COPD patients might be particularly susceptible to late sequelae from COVID-19. About 30% of patients with COVID-19 may suffer from post-COVID syndrome, or “long COVID” and this percentage may reach 50% of patients who suffered a serious illness that required hospital admission.<sup>2</sup> Therefore, it is plausible that COPD patients could not only suffer from a more severe acute form of the disease, but are also at risk of persistent symptoms. Long COVID manifestations include dyspnea, lower limbs weakness, arthromyalgia and fatigue,<sup>2</sup> and COPD itself is related to these symptoms. The coexistence of both diseases could possibly multiply their effects and impact on dimensions of illness with a demonstrated influence on quality of life and survival, such as physical activity. In fact, COPD patients reduced their activity during COVID lockdowns, with the consequence of a decreased ability to perform daily activities and aggravation of mood disorders.<sup>3</sup> Long COVID could only worsen these outcomes. Regarding mood disorders, depression can appear in up to 25% of subjects 9 months after COVID-19.<sup>2</sup> It is credible that pre-existing depression can worsen after SARS-CoV-2 infection, and this is a common comorbidity in COPD that influences its natural history in aspects as important as the incidence of exacerbations.<sup>4</sup> Furthermore, COPD exacerbations are linked to an increased risk of delayed cardiovascular events. A recent study found that, among patients who reported symptoms of acute respiratory illness and who were tested for SARS-CoV-2 infection, frequent and prolonged alterations in resting heart rate were found in individuals with COVID-19, compared to COVID-19 negative subjects.<sup>5</sup> This raises concern that COPD exacerbations caused by SARS-CoV-2 infection may further increase the risk of cardiovascular adverse effects.

It should be noted that COVID-19 vaccination has radically changed the natural history of the disease and, therefore, the current evidence mentioned in the previous paragraph must be interpreted with caution in the new global situation of the

pandemic. However, reinfections with emerging variants of SARS-CoV-2 are common among vaccinated individuals and will be a concern for COPD patients in the foreseeable future. Although COVID-19 is less severe in vaccinated people, it remains to be clarified whether vaccination will reduce the risk of SARS-CoV-2 infection in COPD to the same extent as in people without COPD. Furthermore, we do not know yet the potential impact of COVID-19 on the effectiveness of current therapies used to prevent COPD exacerbations. Until more evidence is available, clinicians should carefully monitor COPD patients after COVID-19, taking into account the risk of both respiratory and multisystem adverse effects.

#### Authors' contribution

All authors have made substantial contributions to the intellectual content and manuscript design and drafting.

#### Ethical approval

All authors gave their approval to the final version of the manuscript and declare to have met the requirements for authorship.

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#### Conflict of interest

The authors declare not to have any direct or indirect conflict of interest related to the manuscript contents.

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