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Are severe asthma patients at higher risk of developing severe outcomes from COVID-19?

One of the key concerns in asthma management during the novel coronavirus disease 2019 (COVID-19) pandemic is the fear for an increased risk of contracting the novel coronavirus or developing a severe course of COVID-19 in asthmatic patients, especially those receiving inhaled corticosteroids (ICS) or biological therapies.^{1,2} Therefore, the study by Heffler et al³ to determine the incidence of COVID-19 among patients with severe asthma in Italy is highly appreciated to reveal the association between the presence of severe asthma and the acquisition of COVID-19, as well as its complications.

However, the observations by the authors that severe asthmatic patients may not be at increased risk of acquisition of COVID-19 and development of a severe course of illness may not hold true. Although only 1.73% of severe asthmatic patients included in the study by Heffler et al³ had confirmed COVID-19 or were highly suspected to have had COVID-19, we think that there are many possible explanations to the observed low incidence. Patients from different countries may have a different background risk of acquisition of COVID-19, related to organizational factors including the enforcement of lockdown measures, compliance towards social distancing recommendations or testing frequency for COVID-19, and patient factors such as the presence of comorbidities other than asthma, amongst others. Therefore, observational studies among a large cohort of COVID-19 patients are required to determine whether patients with severe asthma are over-represented. Similarly, due to a low incidence of COVID-19 in the included severe asthmatic patients, the comparison of the COVID-19-associated mortality rate between the included severe asthmatic patients and the Italian general population may not be accurate to suggest that severe asthmatic patients with COVID-19 are not at an increased risk for development of a severe course of illness.

Other studies have suggested the association between severe asthma phenotypes and poor clinical outcomes from COVID-19. In a retrospective study by Chhiba et al⁴ to determine the risk of hospitalization for COVID-19 associated with ICS use among asthmatic patients, a trend was noticed in which the proportion of asthmatic patients using ICS + long-acting beta-agonist (LABA) and admitted to intensive care unit was far higher (57.9%) compared with those using only ICS (10.5%). Such findings suggested the possibility that those with more severe asthma who require both preventer (ICS) and controller (LABA) may be at risk of developing a severe course of illness from COVID-19. A recent study available as a preprint suggested

the same. Researchers from the OpenSAFELY Collaborative⁵ evaluated the association between ICS use and COVID-19-related death among asthmatic patients using linked electronic health records in the United Kingdom. In an adjusted model among the asthmatic population, COVID-19 patients who received ICS at high dose had a significantly increased risk of COVID-19-related death compared with those who received short-acting beta-agonist (SABA) alone (hazard ratio = 1.52; 95% confidence interval: 1.08-2.14), whereas COVID-19 patients who received ICS at low/moderate dose had no significant difference in terms of the risk of COVID-19-related death compared with their counterparts who received SABA alone (hazard ratio = 1.10; 95% confidence interval: 0.82-1.49). These findings hinted at a possibility that those with more severe asthma who require a higher dose of ICS to maintain asthma control may be at risk of a worse prognosis from COVID-19. Though some may argue that those receiving high-dose ICS use may have more overwhelmed immunosuppression, it has been somewhat refuted in the study by Chhiba et al⁴ which reported that the patients with the combined use of ICS and LABA which possesses corticosteroid-sparing effect too had an increased risk of admission to the intensive care unit.

We opined that more comprehensiveness evaluation may be needed to determine the association between the presence of severe asthma and the acquisition of COVID-19, as well as the risk for severe illness from COVID-19.

CONFLICT OF INTEREST

We declare there is no potential conflict of interest.

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