



# Current smoking is not associated with COVID-19

To the Editor:

We have read with interest the paper by LEUNG *et al.* [1] recently published in the *European Respiratory Journal*, reporting a higher expression of the protein angiotensin-converting enzyme II (ACE-2) in the small airway epithelia of smokers and COPD patients with putatively important implications for coronavirus disease 2019 (COVID-19) patients, since ACE-2 has been shown to be the receptor utilised by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) to enter the host cell [2]. Furthermore, the authors reported that current smokers showed a higher expression of ACE-2 gene expression than non-smokers, concluding that the increased ACE-2 expression in smokers might predispose to increased risk of SARS-CoV-2 infection [1].

To this regard, all epidemiological data published so far reported that COVID-19 patients show a very low prevalence of smokers, with no significant association between current smoking and severe disease in COVID-19 patients [3–6].

At the University-Hospital of Padova, located in the Veneto Region, one of the areas in Italy most affected by COVID-19, between 15 March and 10 April, 2020, 132 patients were assessed in our clinic for SARS-CoV-2 related pneumonia. The analysis of patients' smoking history showed that no-one was a current smoker, with 112 patients (84.8%) who had never smoked and 20 (15.2%) who were former smokers. These data are in agreement with those from China [3–6]. Furthermore, there was no difference in the disease severity between patients who never smoked and former smokers. These data are even more striking if we consider that the percentage of current smokers in Italy and in the Veneto Region is 25.7% and 22.7%, respectively ([www.epicentro.iss.it/passi/dati/fumo](http://www.epicentro.iss.it/passi/dati/fumo)).

Thus, the conclusions of LEUNG *et al.* [1] to consider cigarette smoking as a severe risk factor for COVID-19 pneumonia are in contrast with the strong and consolidated epidemiological data coming from China [3–6] that have been confirmed also in our patients.

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**Despite the main complications of SARS-CoV-2 infection regard lung involvement, the prevalence of current smoking in COVID-19 patients is very low, thus questioning the role of coexisting active smoking as a risk factor for COVID-19 pneumonia** <https://bit.ly/3eUnl1R>

**Cite this article as:** Rossato M, Russo L, Mazzocut S, *et al.* Current smoking is not associated with COVID-19. *Eur Respir J* 2020; 55: 2001290 [<https://doi.org/10.1183/13993003.01290-2020>].

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Received: 20 April 2020 | Accepted after revision: 22 April 2020

Conflict of interest: None declared.

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## Reply to: “Current smoking is not associated with COVID-19”

*From the authors:*

Like M. Rossato and co-workers, we too have been struck by the relative underrepresentation of current smokers in cohorts of coronavirus disease 2019 (COVID-19) patients, particularly in light of our recent findings that the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) receptor angiotensin-converting enzyme II (ACE-2) is upregulated in the airway epithelium of this population [1]. China [2], Italy (as reported by M. Rossato and co-workers), and now New York City [3] have all reported current smoking rates below those of their respective general populations. The reason for this is a mystery. One possible explanation is misclassification of smoking status owing to under-reporting of smoking in these cohorts. Another is that smokers may be taking medications that may offer some protection against COVID-19 (e.g. certain inhalers). It should be noted that severe COVID-19 preferentially targets the older population (>65 years) with comorbidities, in whom smoking rates are approximately 3–5 fold lower than that in the general population. Thus, the background smoking rates in the severe COVID-19 susceptible subgroups may be much lower than the general smoking rates of the population. Notwithstanding these issues, we should be extraordinarily cautious about the messaging surrounding smoking and COVID-19, especially in these fraught times where misinformation is commonly amplified in a vacuum of rigorous evidence [4, 5]. We are unaware of any evidence to date that demonstrates that smoking is protective against COVID-19. In fact, although current smoking has not been found to be a major risk factor for COVID-19, COPD patients appear to have worse outcomes upon contracting the virus with an almost threefold odds ratio of dying, needing mechanical ventilation, or being admitted to an intensive care unit [6]. As many of our COPD patients in this pandemic fit an unfavourable demographic profile – elderly, male, and with cardiovascular comorbidities – we would continue to recommend exercising caution in protecting them from COVID-19.

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Smoking and COPD are risk factors for severe COVID-19 <https://bit.ly/2KJxAbp>

**Cite this article as:** Leung JM, Yang CX, Sin DD. Reply to: “Current smoking is not associated with COVID-19”. *Eur Respir J* 2020; 55: 2001340 [<https://doi.org/10.1183/13993003.01340-2020>].

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Received: 22 April 2019 | Accepted: 23 April 2019

Conflict of interest: J.M. Leung has nothing to disclose. C.X. Yang has nothing to disclose. D.D. Sin reports grants from Merck, Boehringer Ingelheim, personal fees for advisory board work from Sanofi-Aventis, Regeneron, grants and personal fees for advisory board work and lectures from AstraZeneca, personal fees for advisory board work and lectures from Novartis, outside the submitted work.

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