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Smoking, ACE-2 and COVID-19: ongoing controversies

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From the authors:

The three letters from D. Lutchman, K.D. McAlinden and co-workers, and K. Farsalinos and co-workers together capture the divergence in opinion on the impact of smoking on coronavirus disease 2019 (COVID-19) and whether the angiotensin-converting enzyme 2 (ACE-2) receptor mediates this relationship. At the heart of this controversy is whether smoking reduces or increases the risk of contracting COVID-19. K. Farsalinos and co-workers, through analysis of the pooled prevalence of current smoking across 11 case series determined that current smoking status was significantly lower than expected gender- and age-adjusted prevalence in COVID-19 patients. That smoking could potentially be protective against COVID-19 has not gone unnoticed by the public. Since late April, multiple media outlets have reported on this possibility, prompting the World Health Organization (WHO) to release a warning on 4 May, 2020, on tobacco use during this pandemic [1]. While we do not dispute that the prevalence of smoking in COVID-19 cases has been surprisingly low across the world, we would echo WHO's advice, based on emerging evidence that outcomes in COVID-19 are worse in patients who do smoke. An analysis conducted by Killerby *et al.* [2], of 220 hospitalised and 311 nonhospitalised patients with COVID-19 patients across six acute care hospitals and associated outpatient clinics in metropolitan Atlanta, Georgia, for instance, demonstrated that smoking was an independent risk factor for COVID-19 hospitalisation, carrying an odds ratio of 2.3 (95% CI 1.2–4.5). A recent meta-analysis has also shown that smokers have a relative risk of 1.34 (95% CI 1.07–1.67) of having more severe disease or experiencing refractory or progressive disease [3]. While smoking may not necessarily increase one's risk for contracting COVID-19, the biological and inflammatory cascade that occurs upon severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection may be particularly devastating for a smoker.