

Letter to the Editor

Will COVID-19 Infection be Less Severe in Ulcerative Colitis Than in Crohn's Patients, Due to a Lower Rate of Smokers?

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Accumulating evidence indicates that smoking history is a poor prognostic factor in patients infected with COVID-19. Virus entry and activity are primarily related to the angiotensin-converting enzyme-2 [ACE2] receptor, which provides a human cell-binding site for the S protein of SARS-coronavirus [SARS-CoV], NL63-coronavirus, and SARS-CoV-2.¹ ACE2 is physiologically expressed by lung alveolar epithelial cells and plays an important regulatory role. The engagement between the virus and ACE2 appears to be associated with a dysregulation of ACE2, and could lead to acute lung injury. Smoking upregulates the ACE2 receptor,¹ probably explaining why these individuals are more susceptible to coronavirus infection.² Similarly, an elegant study demonstrated that the expression of the MERS-CoV receptor, dipeptidyl peptidase IV [DPP4], was upregulated in the lungs of smokers and chronic obstructive pulmonary disease patients, providing further data in favour of this theory.²

Importantly, there are well-known opposing effects of smoking in ulcerative colitis [UC] and Crohn's disease [CD]. Indeed smoking has been demonstrated to be protective in UC, whereas in CD it has been shown to be associated with a more severe course. In line with previous reports, the percentage of active smokers was higher in CD than in UC patients [3.5% versus 2%, respectively] in the Wuhan inflammatory bowel disease [IBD] registry.³ This difference partly explains why the overall mortality is slightly increased in CD patients with lung cancer or chronic obstructive pulmonary disease [pooled standardised mortality ratio: (1.39, 95% confidence interval [CI]:1.30–1.50)].⁴

In a recent article by An and colleagues³ on the measures adopted by the Wuhan IBD centre to prevent the spread of the new coronavirus [SARS-CoV-2], none of the 318 registered IBD patients reported COVID-19 infection.³ More recently, in an Italian retrospective cohort study, no IBD patient was diagnosed with COVID-19 but smoking status was not assessed.⁵ Based on these findings, we hypothesise that COVID-19 infection may be less severe in the overall population of UC patients than in those with CD, due to a lower rate of smokers. Ongoing large national and international registries on IBD patients infected with COVID-19 are needed to test this hypothesis and clarify the potential role of smoking in this patient population.

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Conflict of Interest

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Author's Contributions

CPB and FD wrote the letter. LPB conceived the letter and critically reviewed the content of the paper. All authors discussed the results and contributed to the final manuscript.

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