

## Case Report of a SARS-CoV-2 Infection in a Patient With Ulcerative Colitis on Tofacitinib

To the Editors,

The emergence of a novel coronavirus in December 2019, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and its resultant disease, COVID-19, has led to a global pandemic with severe disease in 14% of those infected and a case fatality rate of 2.3% reported in China.<sup>1</sup> This has caused uncertainty among providers and fear among patients with inflammatory bowel disease (IBD) on immunosuppressive medications. Though the risk of infection is thought to be similar to that of non-IBD patients, it remains unknown whether patients with IBD may have a more severe presentation compared with non-IBD patients. Furthermore, in IBD patients with COVID-19, the best management strategy has yet to be determined with regard to immunosuppressive medications, many of which have a long serum half-life and even longer tissue effect that can persist much longer than the course of a typical infection.

We report the case of a 33-year-old woman with a 13-year history of ulcerative colitis (UC) on tofacitinib who contracted SARS-CoV-2. She had prior primary nonresponse or secondary loss of response to infliximab, adalimumab, and vedolizumab with persistent severe pancolitis on colonoscopy. A tofacitinib dose of 10 mg twice daily was started in June 2019, and she achieved clinical remission after 5 months of therapy. Restaging colonoscopy to objectively

assess response to tofacitinib was deferred due to cancellation of nonurgent procedures in light of the COVID-19 pandemic.

She subsequently presented with fever, chills, cough, myalgias, sore throat, fatigue, and night sweats but denied shortness of breath. She was a health care worker in the inpatient setting with no known SARS-CoV-2 exposure but subsequently tested positive for SARS-CoV-2 via nasal swab. A shared decision-making approach was taken with the patient, and because of her history of poor response to multiple prior therapies and because of symptomatic improvement without holding therapy, the tofacitinib dose of 10 mg twice daily was continued uninterrupted. Her respiratory symptoms resolved 5 days after symptom onset, and after 2 weeks, she remained well with no residual symptoms. Throughout her course, she did not have any gastrointestinal symptoms and did not require hospitalization. Labs and imaging were not obtained due to her mild course.

The risk of immunosuppression in IBD patients with COVID-19 remains uncertain. Although any immune suppressive medication could in theory alter the natural history of an infection, the Crohn's and Colitis Foundation recommends that patients without COVID-19 remain on their medications with the exception that steroids should be discontinued or dose reduced if feasible. Previously, the highest risk for infection in IBD patients has been associated with corticosteroid use, and corticosteroids may exacerbate COVID-19 lung injury.<sup>2,3</sup>

The case presented here illustrates that in a relatively healthy individual, tofacitinib may not need to be held in patients with COVID-19 without severe disease. Though there is currently no proven therapy for COVID-19, there are numerous therapies being evaluated

or proposed for evaluation. Baricitinib, a janus kinase (JAK) inhibitor approved for use in rheumatoid arthritis, has been proposed as a potential therapy for COVID-19 because it disrupts AP2-associated protein kinase 1 (AAK1), which may inhibit SARS-CoV-2 cell entry and its anti-inflammatory effects.<sup>4</sup> Whether this theory applies to other JAK inhibitors is unknown. Although we cannot definitively say whether tofacitinib played a role in her recovery, it did not appear to be a confounding factor with regard to the severity of COVID-19. We do not suggest that for patients not on tofacitinib that this be initiated, but rather for those already on it that it can potentially be continued during a pandemic. Until further data are available, each case should be evaluated individually with regard to whether IBD immune suppressant medications can be continued in light of an infection.

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