COVID-19 infection in Crohn's disease under treatment with adalimumab

Jin *et al* described recently 74 cases of people having COVID-19 and experiencing gastrointestinal symptoms.[1] In Italy, we are managing a dramatically increasing number of people infected with severe acute respiratory syndrome corona virus 2, the virus causing COVID-19.[2 3] Despite the Italian Government has implemented extraordinary measures to restrict viral spread, including significant decrease of air and train traffic within the country, cases are increasing (>75 000 people until 26 March 2020) also in other regions than Lombardy, which is the main Italian region affected from COVID-19 (>35 000 people until 26 March 2020).[4] This means that a lot of people under immunosuppressive-immunomodulating therapies could be infected by this virus, and that the immunosuppressive status could influence both the status of the basic disease and both the course of pulmonary disease.

A 30-year-old male was admitted on emergency department of the Bari University Hospital, Puglia Region, Southern Italy, on 12 March 2020 (with a low number of cases until that date) due to sudden occurrence of fever (38°C) associated with chest pain during breaths. He underwent to oral and nasal specimens, which resulted positive for COVID-19, and he was admitted to infectious disease division. He was affected from ileal Crohn's disease (CD), and was under treatment with mesalazine 3 g/day and adalimumab 40 mg subcutaneously every other week for 5 years due to steroid dependency. He was under sustained remission for 2 years, and no other comorbidities was reported. At entry, he needed just oxygen support; thoracic CT scan showed mild interstitial inflammation and laboratory examination (including erythrocyte sedimentation rate and C reactive protein) was normal except for a mild thrombocytopenia ($164^3/\mu$L, n.v. $179–373^3/\mu$L). No abdominal pain was reported, and bowel movements were normal. Any specific therapy was started except for suspension of adalimumab, and he had a rapid clinical improvement: fever and chest pain disappeared within 24 hours, and at the fifth day of hospital stay he was asymptomatic (an Rx of the chest did not find sign of inflammation at that time). Significantly, no occurrence of abdominal pain or changes in bowel habits were recorded, and also faecal calprotectin assessment was normal (38 mg/kg, n.v. <50 mg/kg).

This case is of interest for two main reason. Although this infection is characterised by typical respiratory symptoms, Jin *et al*[1] and Wang *et al*[5] reported less common features like diarrhoea, nausea, vomiting and abdominal discomfort. Moreover, COVID-19-RNA was found recently in the stool of 53.42% of people tested positive for COVID-19.[6] If COVID-19 colonises gastrointestinal tract (unfortunately, we did not check COVID-19-RNA in stools of our patient), it could cause a worsening of a pre-existing intestinal disease as CD. Our case seems to exclude this. Since covid-19 binds ACE 2,[7] a possible explanation of our case could be because the patient was in clinical remission with no active inflammation, so less risk of having ACE 2 expression upregulation in the gut.[8]

Another interesting feature is that pulmonary disease recovered quickly despite our patient was under immunosuppressive treatment with an antitumour necrosis factor α (TNFα). Of course, this could be explained by the young age of our patient, because in Italy younger patients seem to have a more favourable course.[4] Another hypothesis is that not all immunosuppressive treatment can cause clinical worsening, probably due to different mechanisms in suppressing immune system activity. We know that TNFα is overexpressed also in severe respiratory distress syndrome.[9] In this way, current treatment with adalimumab not only could not be a risk factor for both severity of pulmonary disease and recurrence of the intestinal disease in patients with CD infected by COVID-19, but also could reinforce the hypothesis to use adalimumab in treating at least some of the infected people.[2] Of course, the questions raised by this case have to be addressed by the large epidemiological studies currently ongoing.

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Contributors Acquisition, analysis and interpretation of data: AT, GA, LM, AS, FS, AR and AP; drafting the work or revising it critically for important intellectual content: AT and AP; final approval of the version published, agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: AT, GA, LM, AS, FS, AR and AP.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; internally peer reviewed.

To cite Tursi A, Angarano G, Monno L, *et al*. *Gut* 2020;**69**:1364–1365.

Received 27 March 2020
Revised 2 April 2020
Accepted 6 April 2020
Published Online First 20 April 2020

Gut 2020;**69**:1364–1365. doi:10.1136/gutjnl-2020-321240

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