COVID-19 and the gastrointestinal tract: more than meets the eye

Siew C Ng,1 Herbert Tilg2

An outbreak of coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome (SARS-CoV-2), has rapidly spread from China to almost all over the world affecting over 800,000 people across 199 countries. Whereas typical presentations of this infection, such as fever, cough, myalgia, fatigue and pneumonia, are well recognised,1–4 early studies reported low incidence of typical gastrointestinal (GI) symptoms, such as diarrhea in the range of 1%–3.8%.5–8 Another study suggested a higher rate of GI symptoms with diarrhea and nausea in 10.1% and vomiting in 3.6%.5

In GUT several articles report on GI symptoms, detection of the virus in faeces and potential pathophysiological aspects including viral receptor expression in the GI tract.6–12 Two large clinical studies from China focused on GI symptoms and detection of the virus in faeces.6 7 Jin et al reported in the upper and stratified epithelial cells,8 in the ileum and colon than the lung.8 It is unclear whether intestinal inflammation exacerbates ACE2 expression in the gut and exerts an increased risk to patients with inflammatory bowel disease. In this issue of GUT, death was reported in an elderly patient with severe acute ulcerative colitis (on mesalazine) who was treated with high dose intravenous corticosteroids and subsequently developed COVID-19 pneumonia.12 Further evidence is required to define the best treatment strategy in patients with IBD especially those with active disease.

In about 50% of COVID-19 cases, the presence of SARS-CoV-2 in faecal samples and detection of SARS-CoV-2 in intestinal mucosa of infected patients suggest that enteric symptoms could be caused by invasion of ACE2 expressing enterocytes and the GI tract may be an alternative route of infection. In over half of the patients, faecal samples remained positive for SARS-CoV2 RNA for a mean of 11 days after clearance of respiratory tract samples.20 A recent study further confirmed that 8 of 10 infected children had persistently positive viral rectal swabs after nasopharyngeal testing was negative.21 Importantly, live SARS-CoV-2 was...
detected on electron microscopy in stool samples from two patients who did not have diarrhoea, highlighting the potential of faecal-oral transmission.\textsuperscript{22}

In conclusion, these studies provide new insights into our understanding of the prevalence, aetiology and potential mechanisms of COVID-19 in the GI tract crucial for defining prevention measures, clinical care and treatment strategies. Unanswered questions and challenges remain, such as the significance of virus detection in the stool/rectal swabs of asymptomatic subjects, whether ACE2 is a direct mediator for SARS-CoV-2 entry into the GI tract and how the virus could survive passage through extreme pH environment of the digestive system. Currently, prolonged fecal shedding in infected patients even after viral clearance in respiratory tract suggests that stool testing should be considered in patients with COVID-19 with appropriate transmission precautions for hospitalised patients who remain stool positive. Further research to determine the viability and infectivity of SARS-CoV-2 in faeces is required to control the spread of the virus especially in asymptomatic carriers.

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ORCID iDs
Siew C Ng http://orcid.org/0000-0002-6850-4454
Herbert Tilg http://orcid.org/0000-0002-4235-2579

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