

Clinical insight into the involvement of gut and liver by COVID-19

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Coronavirus disease 2019 (COVID-19) is caused by a novel coronavirus that is now named 'severe acute respiratory syndrome coronavirus 2' (SARS-CoV-2)¹. The disease, emerged in Wuhan, China in late 2019, has become a global pandemic, spreading to many countries including Pakistan². Symptoms at the onset of illness are fever, cough, myalgia, and fatigue. Patients with more severe disease have a productive cough, headache, dyspnoea, and haemoptysis. Some of these patients end up with acute respiratory distress syndrome and multiorgan failure as a result of cytokine storm.^{3,4} Reports are emerging of gastrointestinal manifestation of the disease as well, including symptoms such as anorexia, diarrhoea, vomiting, and abdominal pain.^{5,6} Such patients have a longer time of onset to diagnosis of the disease, likely because the index of suspicion is low.

It is now recognised that in addition to the droplet, fomite-to-face contact, and possible airborne transmission, the faecal-oral transmission may also exist. Case reports are emerging which highlight the detection of SARS-CoV-2 sequence in saliva and stools of infected patients.^{7,8} The virus can enter the host cells via angiotensin converting enzyme II (ACE2) receptors located on type II alveolar cells, intestinal epithelia, and cholangiocytes.⁹ Therefore it has been proposed that ACE2-expressing enterocytes and cholangiocytes might also be vulnerable to the viral attack. A preliminary study by Chai et al suggests that liver abnormalities may be due to cholangiocyte dysfunction and damage.¹⁰ This interaction can disrupt the function of the ACE 2 expressing cells resulting in inflammation in the liver and intestine and alteration in the gut microflora.^{6,11} Moreover, drug-induced hepatotoxicity, and immune-mediated inflammation can also contribute to liver injury leading to impairment of liver function tests.¹² These patients may have elevated aminotransferases and gamma-glutamyl transferase (GGT), hypoproteinaemia and prolonged prothrombin time.

Considering the immunocompromised status of

patients with advanced liver disease and decompensated cirrhosis, liver transplant patients and inflammatory bowel disease patients on biologics, more intensive surveillance is needed. These patients should avoid handshaking and maintain social distancing. They should boost their immunity with good sleep and nutrition and eat well-cooked homemade meals. They should avoid touching unclean hands to nose, face, and eyes and wear a mask when going to public places and use the non-dominant hand to touch surfaces if needed at all. In the case of new-onset respiratory symptoms, they should use a face mask and immediately contact their doctor.

Upper and lower gastrointestinal endoscopy should be regarded as a risky procedure, as it may expose the operator to the droplet spray from mouth or anal flatus.¹³ The availability of personal protection equipment (PPE) to the staff is very important, which may include gloves, goggles or face shields, gowns, and respiratory protective equipment. Elective procedures may be postponed, and a policy should be formulated for emergency procedures. A triage protocol should be in place to stratify the risk of SARS-CoV-2 and decide the degree of urgency: respiratory tract and GI tract symptoms, along with family history or close contact with a suspicious or confirmed case, and travel history. Endoscopy personnel should follow standard precautions. Hand hygiene is mandatory; wash hands with soap and water or alcohol-based hand rub before and after all patient interaction, contact with potentially infectious sources, and before putting on and upon removal of PPE. The staff should also be trained in the sequence of donning and doffing PPE. Room decontamination guidelines should be followed.

Though eighty percent of patients with COVID-19 have mild symptoms and recover spontaneously, patients with co-morbidities are more likely to have a critical illness. Much research is on-going regarding therapeutic agents, such as remdesivir, azithromycin and hydroxychloroquine, and passive immunization.^{14,15} It may be too early to see the published results of all of these ongoing trials. The need of the hour is to control the spread and to learn more about the virus so we can counter our response to this pandemic.

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