

Questions and answers

(A)

Q1: What types of gastrointestinal (GI) symptoms are seen in patients with SARS-CoV-2 (COVID-19)? At what point after infection do those symptoms occur?

A1: Symptoms include diarrhea, vomiting, and abdominal pain, and they often occur during the prodromal period of the disease.

Q2: Why do we consider that SARS-CoV-2 can actively infect and replicate in the GI tract?

A2: SARS-CoV-2 RNA has been identified in anal-rectal smears and stool samples, even after clearance of the virus from the upper respiratory tract. Additionally, the viral receptor angiotensin converting enzyme 2 (ACE2) has been found to be expressed in gastrointestinal epithelial cells.

Q3: Please explain regarding the viability of SARS-CoV-2 in the environment.

A3: SARS-CoV-2 can remain viable in aerosols for several hours, and has been shown retain stability on plastic and stainless steel surfaces for at least 72 hours.

Q4: In regard to SARS-CoV-2 infection in the GI tract, what points do the authors note for diagnosis and management of COVID-19 in clinical practice?

A4: GI symptoms are often noted before the onset of pyrexia and respiratory symptoms, and their presence may indicate the severity of COVID-19. In this regard, the presence of SARS-CoV-2 in the GI tract and related inflammation could provide details indicating a therapeutic target for COVID-19. The authors recommend that these

important points be kept in mind by physicians when considering diagnosis of COVID-19 as well as treatment options in clinical practice.

(B)

Q5: Please explain the clinical characteristics of COVID-19 patients with GI symptoms as compared to those without GI symptoms.

A5: COVID-19 patients with GI symptoms are more prone to fatigue, coughing, and headaches. Blood examination tests reveal increased levels of inflammatory markers (neutrophil count, C-reactive protein) as well as markers indicating liver damage (alanine aminotransferase, aspartate aminotransferase, bilirubin) in COVID-19 patients with as compared to without GI symptoms.