

Effect on Gastrointestinal Tract during COVID 19

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We the world population, might be staying as citizens of different countries, mother earth still remains one. If one is in danger, no one is safe. History tells us the epidemic of Plague, haemorrhagic fever, Cholera, small pox and now COVID-19 has proven this. Whatever, may be our knowledge, we human try to kill the visible and invisible lives as our enemy, they return to create havoc. Total COVID death toll till Jan 12,2022 is 5,528,917 in 222 countries.

The origin of covid may be mysterious, Covid definitely started in Wuhan in China. The flying machine took the disease all over the globe. A highly infectious disease and spreads by contact and aerosol, remaining alive for hours to days on surfaces [1]. The virus enter through the oral or nasal route to cause the disease. The GI tract has got gastric acid barrier. Nose allow them to enter the lung. They enter the epithelium and multiply causing epitheliopathy. Through the damaged epithelium (*endotheliopathy*) enter the blood circulation and get access to whole body and cause viremia. The body response to viremia is a violent inflammatory reaction, where all organ systems get involved, including the gastrointestinal tract [2].

Covid-19 viruses enter the epithelial cells of respiratory tract with cytopathic effect. The same process starts at the vascular endothelium which generate thrombin and the thrombotic process starts. This leads to activation of other pathways including the immune system and thrombo-inflammatory responses. Damaged epithelium causes thrombosis causing elevation of D-dimer. This coagulation process can involve any organ of the body including mesenteric vessels [3,4]. Sole GI symptoms have been reported in both adults and children [5]. Viral RNA has also indicating the possibility of enteral entry and further liver damage, which has been reported in COVID-19 patients in the form of pain abdomen and diarrhoea [5,6]. Viral receptor angiotensin converting enzyme 2, is highly expressed in the gastrointestinal tract and enables the invasion of the gastrointestinal epithelium as demonstrated *in vitro* and *in vivo* and isolation of virus in the stool almost confirm the disease association [6]. Based on the severity of the disease, as predicted by elevated inflammatory markers and cytokines activity, the microbiota changes with the same magnitude. This change of microbiota may help in persistence of symptoms for a longer time [7]. When the microbiota decreased, which happens in elderly patients with immune suppressive action leads to fatality. The authors suggest supplementation of food and pre-probiotics as therapy [8]. Involvement of liver and pancreas is seen in COVID. Elevated Serum amylase is seen in 33% of patient in a retrospective data of 44 patients and lipase in 24.1%. Patients with > 3X hyper lipaemia had fatality of COVID [9]. Sever COVID patients in chronic liver disease is seen in 14 - 53%. Direct COVID hepatic cytopathic damage were seen to have uncontrol immune response and had higher mortality [10]. Because, of its complex pathophysiology, many clinicians get confused by its viral mediated severe stress response with multi organ damage including thrombosis of blood vessels, warranting critical care to bulk of the patient [11]. It is characterized by low lymphocytes and vascular thrombosis [12,13]. Vascular thrombotic pathology can involve any part of bowel leading to gangrene. Usually seen in post covid situation. Any evidence of bowel gangrene need bowel resection [14] and longer systemic anticoagulation. If it involves the large bowel may lead to fatality [15] Thus, COVID can involve any part of gastrointestinal tract, so treating team need to be watchful.

The mother earth is not only for human, which is clocking higher than 7.9 billion [16]. Earth is mother to all living being. We the Homo sepia should have only 0.01% and leave rest to others living beings. We can only help and destroy them and the responsibility is solely on us. Other biomasses are for us only. A balance is essential. If more other lives are taken away, invisible bioagents will come closure to human like COVID. Let us live and let allow others to live.

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