

COVID-19 in gastroenterology and hepatology: Living with the realities of a historic 21st century pandemic

The emergence of the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) in Wuhan, China in December 2019 marked the beginning of a modern global pandemic with an impact and reach that is unprecedented since the Spanish Influenza pandemic of 1918. SARS-CoV-2 causes coronavirus disease 2019 (COVID-19), a respiratory tract infection that can cause severe acute and rapidly progressive respiratory failure, leading to multi-organ failure and death. At the time of writing this editorial, close to 4.4 million cases of COVID-19 and close to 300,000 deaths have been reported worldwide. To put this tragedy in its proper perspective, in the United States, within a few short months, the virus has killed more Americans in 2020 than the 20 years of active military involvement during the infamous Vietnam War from 1955 to 1975. In Saudi Arabia, the first case of COVID-19 was reported by the Ministry of Health on March 2nd, 2020. Since then, an increasing number of cases have been diagnosed and as of May 12, close to 43,000 have been reported.

Over the past 5 months, as the experience with COVID-19 has increased, reports of extra-pulmonary manifestations of this disease such as hepatic, gastrointestinal, cardiac, neurological, and hematological pathologies have become evident.^[1-5] That there are gastrointestinal and hepatic manifestations of COVID-19 infection have been known since the early days of the pandemic when the infection started in Wuhan.^[1,2] In this issue of the Saudi Journal of Gastroenterology (SJG), Cheong *et al.* provide an up to date review of the gastrointestinal and hepatic clinical manifestations of COVID-19.^[6] Diarrhea is the most well-known luminal manifestation of the infection and the stool can be a potential source of transmission.^[1] The hepatologic manifestations tend to be biochemical with increases in serum alanine aminotransferase and aspartate aminotransferase usually occurring in the most ill patients admitted to an intensive care unit.^[2] The exact significance of the liver biochemical abnormalities is not clear. Whether it is simply a bystander effect of the systemic inflammatory response, a reflection of drug-induced liver injury (i.e., DILI) in significantly ill patients on many drugs, a form of hepatic ischemia from the systemic inflammation, aggravated by vasopressor agents, or is a reflection of true hepatic infection, remains unknown.^[7] It would be

erroneous, however, to dismiss the COVID-19 pandemic as being irrelevant to the practice of hepatology. On the contrary, the pandemic may indirectly result in the deaths of many around the world with end-stage liver disease due to its impact on liver transplantation. As intensive care unit (ICU) resources become rationed due to the pandemic, both the ability to sustain donors for potential transplantation and the ability to receive new transplant recipients from the operating room become limited and, in some cases curtailed, resulting in potentially increased mortality on the waiting list. Similarly, clinic visits during a pandemic may be canceled, impacting post-transplant care, and pre-transplant assessment. Liver transplant recipients who acquire COVID-19 infection may also have a worse outcome and pre-liver transplant patients waiting for a liver who acquire COVID-19 will be suspended from the waiting list and may miss their chance for long-term survival. The concerns are serious and are reflected by the position statement of the Saudi Association for the Study of Liver Disease and Transplantation (SASLT) in this special issue.^[8]

The health and well-being of health care workers on the front lines of the COVID-19 must also be an important consideration. By caring for ill COVID-19 patients, as well as caring for other patients who may unknowingly have the viral infection, doctors, and nurses willingly place themselves in harm's way and could transmit the infections to their families. The dangers, both physical and psychological, are personified by the high-profile deaths of two physicians: Dr. Li Wenliang of Wuhan and Dr. Lorna Breen of New York. Dr. Wenliang, an ophthalmologist, died of COVID-19 at the age of 34. He was among the first to alert the authorities of the growing epidemic for which he was reprimanded but posthumously declared a hero by the Chinese government (Vancouver Sun, March 14, 2020). Dr. Lorna Breen, the Director of the Emergency Department of New York-Presbyterian Allen Hospital, contracted COVID-19 and recovered, the psychological despair caused by working with so many patients dying from COVID-19, however, caused her to tragically take her own life (Vancouver Sun, April 20, 2020). Clearly, procedures and protocols must be put into place to minimize the risks of such tragedies in our own hospitals. In this special issue, of the SJG, the Saudi Gastroenterology Association (SGA)

published its position paper on minimizing the risk of viral transmission in the endoscopy suites.^[9]

While many of the concerns of the gastroenterologists and hepatologists are well-addressed by the SGA and SASLT positions statements, the COVID-19 pandemic has influenced physicians in all medical specialties. Al Sulais *et al.* reported a national cross-sectional survey evaluating the impact of COVID-19 pandemic on the physicians' psychological well-being.^[10] The survey was distributed between March 20 and 28th, 2020, which corresponds to the early phase of COVID-19 in Saudi Arabia. The survey included 529 physicians practicing in different specialties, 70% working in COVID-19 designated centers, and 40% in high-risk hospital areas for viral transmission. Of the included physicians, 67% felt worried, 56% felt isolated, and 49% experienced fear. In their multivariate regression analysis, they found that physicians older than 60 years of age were less likely to feel isolated (OR = 0.08, 95% CI = 0.01–0.96, $P = 0.05$), while female physicians were much more likely to experience fear (OR = 2.96, 95% CI = 1.20–7.27, $P = 0.02$). The generalizability of the results should, however, be interpreted with caution as the study is limited by the nature of its design, the low response rate, and the convenient but problematic snowball sampling using the social media platforms. Nevertheless, the study has clearly shown us the extent to which the COVID-19 pandemic might have influenced the physicians' well-being. One would wonder how the reported physicians' feelings evolve as we progress through the pandemic.

Lastly, two cross-sectional studies aimed to determine the impact of the COVID-19 crisis on inflammatory bowel disease (IBD) patients. In the first study, Azzam *et al.* used the 10-item IBD-disk questionnaire to evaluate health-related quality of life (HRQoL) in 29 IBD patients before (November-December 2019) and after (March 2020) the COVID-19 crisis.^[11] The authors concluded that HRQoL appears to be unaffected by the COVID-19 pandemic among their cohort, although the study is limited by its small sample size and for the early implementation of the second interview period. In the second paper, Mosli *et al.* explored emotional state, perception, and concerns among a much larger number of IBD patients recruited through social media platforms.^[12] The study included 1156 patients who were asked to complete an online survey that included a previously validated Arabic version of the Hospital Anxiety and Depression Scale (HADS), among other questions. Although no patients reported scores consistent with depression, it is concerning that about half of the patients had a score consistent with anxiety while 15% and 30% had borderline scores for

anxiety and depression, respectively. In their regression model, the authors identified education limited to high school diplomas, indeterminate colitis, and female gender as predictors for anxiety. Furthermore, about one-third of the surveyed IBD patients reported discontinuation or delay of their IBD medications while only one-third of the patients were able to stay in contact with their treating physicians during the pandemic. It is commendable of the authors that they were able to recruit a large number of patients followed at multiple centers in a timely fashion. Nevertheless, convenient sampling through social media is a limitation of this study. Furthermore, it is unclear if patients had prevalent anxiety or depressive symptoms prior to the onset of COVID-19 pandemic particularly since IBD patients are more vulnerable to psychological stress compared to normal individuals.^[13] Overall, these two studies provided us with important insights on the potential impact of COVID-19 on the IBD patients population. Measures should be taken by the IBD community to promote the health of IBD patients by maintaining easy access to health care and by developing social and emotional support programs during this difficult time.

In conclusion, the COVID-19 pandemic affects all who practice gastroenterology and hepatology, either directly or indirectly. The SJG has done the specialty a great service by publishing this special issues of the Journal. COVID-19 is an emerging, rapidly evolving disease and, therefore, our knowledge and understanding evolve as we gain more experience. To our colleagues in Saudi Arabia and the rest of the world, we can only state that your efforts on behalf of patients during this crisis are greatly appreciated, and endeavor to take care of your own health. Stay safe.

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