

the stomach, thereby increasing the LES pressure. In the era of open antireflux surgery, symptom response rates of 80–90 % were reported. Even at that, many patients avoided it because of high morbidity and other way of surgical procedure is Endoluminal fundoplication is a new, modified version of open or laparoscopic fundoplication which accesses the stomach through the mouth, thereby eliminating the need for incisions. With the introduction of laparoscopic techniques, there has been an exponential growth in the number of antireflux operations and their advantages include fewer incisional hernias, shorter hospital stay, less pain, quicker return to work, and fewer defective wraps at follow-up endoscopy.

### **Conclusion**

GERD is one aspect of gastroenterology that has undergone tremendous innovations in the past years and is still an area of intensive research. There have been innovations in the definition, classification, diagnosis, clinical course, and management of GERD. Nonerosive reflux disease (NERD) is the variant of GERD that affects over 60 % of patients with GERD and it is not only more heterogeneous than erosive esophagitis but has a different pathophysiology and response to standard medical therapy. Because GERD is a chronic, relapsing disease, patients have to be managed with either long-term medical treatment or surgery after a thorough analysis of the pros and cons of each modality. A number of issues remain unresolved about GERD and it is hoped that the next couple of years would come with more discoveries and modern techniques in this important disease.

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## **CLINICAL PERSPECTIVES AND HEPATOLOGICAL CARE FOR LIVER DISEASE IN ASSOCIATED WITH COVID-19**

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### **Introduction**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an RNA virus first reported in humans in Wuhan, China, in December 2019. The virus has since spread rapidly worldwide causing coronavirus disease 2019 (COVID-19), which continues to have a devastating effect on global health. The majority of patients with SARS-CoV-2 infection remain asymptomatic or have mild symptoms, including fever, cough, anosmia and headache. However, around 15 % develop severe pulmonary disease typically over 10 days, leading to respiratory compromise, which might progress to multi-organ failure, coagulopathy and death. Oxygen supplementation, invasive ventilation and other supportive measures now form part of the standard-of-care in hospitalized patients; however, mortality remains high among those with critical disease. Common risk factors consistently associated with severe COVID-19 are now well established and include advancing age, male sex and a burden of

comorbidity, including hypertension, heart disease, diabetes and malignancy. In parallel, randomized clinical trials continue to evaluate therapeutic strategies against SARS-CoV-2, including direct antiviral and immune-modifying agents. Understanding which patient groups require early or novel therapeutic interventions is a high clinical priority. Since the onset of the pandemic there has been concern that pre-existing chronic liver disease (CLD) might predispose to poor outcomes following SARS-CoV-2 infection, particularly due to the overlapping risk factors for severe COVID-19 and CLD. In addition, advanced liver disease is associated with immune dysregulation and coagulopathy, which could contribute to a more severe COVID-19 course. The global burden of CLD is vast, with cirrhosis affecting more than 122 million people worldwide, of whom 10 million have decompensated disease. Understanding the natural history of COVID-19 in patients with CLD, across different aetiologies and across the spectrum of liver disease severity, is therefore paramount.

#### **Aim**

To establish the clinical perspectives of the patients with covid-19 and along with their association of liver disease and also aiming in providing the hepatological care to the needs of the patients.

#### **Materials and Methods of research**

We searched articles published in Medline, PubMed, EMBASE, New England Journal of Medicine, NSCID, American Association for the study of liver disease using keywords Covid-19, liver disease, clinical perspectives, hepatological care.

#### **Results and Discussion**

The liver disease could influence clinical outcome in COVID-19. In the general population, advancing age, obesity and diabetes are risk factors for COVID-19 morbidity and mortality. Indeed, there are wide inconsistencies throughout the literature regarding the influence of NAFLD on the COVID-19 course. This inconsistency could be related to difficulties in separating the effect of NAFLD from other metabolic comorbidities, due to the confounding effect of viral-induced steatosis or because of varying diagnostic criteria. In multiple series, the main cause of death in CLD patients was COVID-19-induced pulmonary disease followed by liver-related mortality. Among patients with prevalent liver disease, once infected with SARS-CoV-2, there is a stepwise increase in morbidity and mortality with increasing severity of cirrhosis as measured by Child–Pugh (CP) class. A summary of studies reporting outcomes in patients with SARS-CoV-2 and pre-existing liver disease is presented. Although the acute mortality associated with COVID-19 in patients with cirrhosis is high, in those who survive the initial insult, the rates of death and re-admission at 90-days are comparable to those with cirrhosis alone. Therefore, beyond the acute infective period, SARS-CoV-2 infection does not seem to precipitate liver disease progression over and above the natural history of cirrhosis.

COVID-19 can cause acute-on-chronic liver failure (ACLF). Although traditionally associated with bacterial infections, viral illness can also precipitate ACLF, which is marked by both liver-specific decompensation and increasing severity and frequency of extrahepatic organ system failure. Cirrhosis is known to be associated with an increase in baseline endotoxemia and cytokine production that can lead to an exaggerated inflammatory response in the setting of infection. This aspect might be particularly severe in patients with alcohol-induced liver disease, potentially explaining the increased mortality in this group. It has also been shown that gut microbiota composition plays a role in regulating the magnitude of COVID-19 severity, possibly via modulating host immune responses. Given that cirrhosis is characterized by changes to gut microbiota composition and function alongside intestinal permeability, it is possible that alterations in the gut–liver axis might contribute to the severe COVID-19 course observed in this patient group. During the early phase of the COVID-19 pandemic, the prevention, control and management of SARS-CoV-

2-infected patients rightfully took centre stage and it was therefore reasonable to reduce and postpone services for other non-urgent medical conditions. Nonetheless, such policies will inevitably have collateral downstream effects on patients, including those with CLD. With time, because of the delayed diagnosis and treatment of various liver diseases, there will be escalating morbidity and mortality.

In patients with cirrhosis, it is important to treat the underlying liver disease, screen for hepatocellular carcinoma (HCC) and varices, and promptly detect and treat complications of cirrhosis. All these strategies might be affected during the pandemic. For instance, the delayed initiation of antiviral therapy in patients with chronic viral hepatitis and the relapse of problem drinking could lead to disease progression and decompensating events. Postponing routine therapeutic paracentesis for tense ascites might convert an elective procedure into one requiring emergency hospitalization. Acute variceal haemorrhage could also develop in patients without timely endoscopic surveillance.

Currently, HCC surveillance was in high-risk patients (for example, advanced cirrhosis, chronic hepatitis B virus infection) during the COVID-19 pandemic. therefore, recognises that an arbitrary delay of 2 months might be reasonable following the discussion of risks and benefits with the patient. If HCC surveillance is deferred indefinitely, it is inevitable that the proportion of patients presenting with HCC not amenable to curative treatments will increase. The proper management of HCC requires input from hepatologists, surgeons, intervention radiologists, oncologists and allied health workers, and therefore the maintenance of multidisciplinary care via telemedicine should be actively pursued.

Liver transplantation programmes have been affected by the pandemic in a multitude of ways. First, the recommendation against using organs from deceased donors with SARS-CoV-2 infection is consistent across all major guidelines. Similarly, to avoid the risk of SARS-CoV-2 exposure and transmission, live donor transplantation has often been reduced or suspended. During times of peak SARS-CoV-2 infection the strain on hospital resources, and particularly ICU availability, has meant that, for certain periods, liver transplantation has been reserved only for super-urgent and highly urgent cases.

### **Conclusion**

The hepatic consequences of SARS-CoV-2 infection are now recognized as an important component of COVID-19. This aspect is most clinically relevant in patients with pre-existing cirrhosis who are at remarkably high risk of severe COVID-19 and death. Though a range of in vitro and in vivo models have been used to help decipher the specific hepatotropic of SARS-CoV-2, the clinical impact of direct viral infection of liver cell types remains to be determined. The grave prognosis with COVID-19 in patients with cirrhosis contrasts with the certain population who have comparably better outcomes. Lastly, we must all be aware of the profound negative effect of the pandemic on liver services and unhealthy patient behaviours, which might culminate in an increase in the global burden of liver disease in the coming months and years.

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