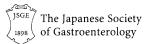
LETTER TO THE EDITOR





## **COVID-19-associated liver injury (COVALI): role** of hepatologists

Yoshio Sumida<sup>1</sup> · Masashi Yoneda<sup>1</sup>

Received: 8 April 2021 / Accepted: 28 June 2021 / Published online: 2 July 2021 © Japanese Society of Gastroenterology 2021

**Keywords** COVID-19 · Liver injury · Cirrhosis · SARS-CoV-2

We read with great interest the article by Li and colleagues [1]. COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which has become a global pandemic. Elevated hepatic enzymes are common in patients with COVID-19, occurring in approximately 15-65% of SARS- CoV-2-infected individuals, particularly in severe cases. Liver biopsy results in patients with SARS-CoV-2 have been characterized by non- specific findings, including steatosis, mild lobular and/or portal inflammation, and vascular pathology. It still remains unknown SARS-CoV-2 can directly infect hepatocytes and/or cholangiocytes. Mechanisms underlying COVID-19-associated liver injury (COVALI) are multifactorial and related to direct cytopathic effect of SARS-CoV-2, cytokine storm, hypoxia, abnormal coagulation, an administrated drug, and preexisting chronic liver diseases (CLD). The article extensively reviewed plausible mechanisms of COVALI. Overall, 2-11% of patients with COVID-19 were reported to have underlying CLD. Patients with cirrhosis have high rates of hepatic decompensation, acute-on-chronic liver failure and death from respiratory failure following SARS-

This comment refers to the article available online at https://doi.org/ 10.1007/s00535-021-01760-9.

Voshio Sumida sumida@koto.kpu-m.ac.jp CoV-2 infection and should be prioritized for COVID-19 vaccination. The Asia Pacific Association for the Study of the Liver (APASL) launched a pan-Asia collaborative study "APASL COVID Liver Injury Spectrum (APCO-LIS). APCOLIS study showed that the outcome was poor with Child-Pugh score 9 or more among 43 cirrhosis those exposed to SARS CoV2 infection [2]. According to data on 745 patients with CLD and SARS-CoV-2 from a UK hospital network. Baseline child stage and alcohol-related liver disease are independent risk factors for death from COVID-19 [3]. Accumulating evidences have proposed that metabolism-associated fatty liver disease may be a risk factor for COVID-19 severity. Liver transplant recipients do not appear to have an increased risk of mortality following SARS-CoV-2 infection compared with the matched general population. The effects of COVID-19 on underlying CLD require detailed evaluation, with further research warranted in this area. Remdesivir, an approved drug for patients with COVID-19, may have hepatotoxic effects. Remedesivir should not be used for COVI-19 patients with baseline liver enzymes more than five times the upper limits or decompensated cirrhosis. If patients with COVID-19 receive dexamethasone or tocilizumab, HBV reactivation should be ruled out. International academic societies have recommended guidance outlining the evidence to date regarding the management of patients with COVID-19 and liver disorders, and CLD under the COVID-19 pandemic. The percentages of scheduled visits to screen HCC or varices in chronic hepatitis C after sustained virologic response declined rapidly after COVID-19 became pandemic in Japan [4]. We should avoid delay of HCC surveillance in CLD patients. If liver enzymes are commonly elevated in patients with COVID-19, we should first evaluate for the presence of other causes including acute viral infections (HAV, HBV, HEV, etc.) or pre-existing

<sup>&</sup>lt;sup>1</sup> Division of Hepatology and Pancreatology, Department of Internal Medicine, Aichi Medical University, Nagakute, Aichi 480-1195, Japan

CLD, and strictly follow-up liver enzyme values. Hepatologists must play a certain important role in management of COVALI in collaboration with respiratory medicine and infectious disease specialists until efficacious SARS-CoV2 vaccines or effective medications are globally available [5].

## Declarations

**Conflict of interest** The authors declare that they have no conflict of interest.

## References

1. Li D, Ding X, Xie M, et al. COVID-19-associated liver injury: from bedside to bench. J Gastroenterol. 2021;56:218–30.

- Sarin SK, Choudhury A, Lau GK, et al. Pre-existing liver disease is associated with poor outcome in patients with SARS CoV2 infection; the APCOLIS Study (APASL COVID-19 Liver Injury Spectrum Study). Hepatol Int. 2020;14:690–700.
- Marjot T, Moon AM, Cook JA, et al. Outcomes following SARS-CoV-2 infection in patients with chronic liver disease: an international registry study. J Hepatol. 2021;74:567–77.
- 4. Toyoda H, Yasuda S, Kiriyama S, et al. Impact of COVID-19 pandemic on surveillance of hepatocellular carcinoma: a study in patients with chronic hepatitis C after sustained virologic response. GastroHep. 2020;2:247–52.
- Sumida Y, Kimoto S, Sakamoto K, et al. Relationship between COVID-19 and liver diseases: the role of hepatologists in clinical practice. Kanzo. 2020;61:8–15.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.