Received: 19 June 2022 | Accepted: 21 June 2022

DOI: 10.1002/hep.32664

CORRESPONDENCE

Reply

We thank Jiang et al.[1] for the interest in our study on progressive cholestasis and secondary sclerosing cholangitis (SSC) after coronavirus disease 2019 (COVID-19) in patients with chronic liver disease (CLD)[2] that has raised clinical awareness for long-term hepatobiliary complications of COVID-19. Importantly, patients with CLD, especially NAFLD/NASH, and those with severe courses of COVID-19 requiring admission to the intensive care unit (ICU) were at particularly high risk for developing progressive cholestasis and irreversible bile duct damage.

Jiang et al. argue that the population characteristics of the two groups could have been different. However, we want to emphasize that important clinical parameters[3] including age, sex, severity of preexisting CLD, extracorporeal membrane oxygenation, and follow-up duration did not differ between our control cohort and patients with CLD and COVID-19. Indeed, patients in the control cohort all were ICU patients, they were intubated and died more frequently than the patients with CLD and COVID-19. This indicates a similarly—or even more—severe state of critical illness of patients in our control cohort versus the patients with CLD and COVID-19. Thus, the increased prevalence of SSC among the CLD-COVID cohort may be even more significant, because hypoxemia, mechanical ventilation, and systemic inflammatory response syndrome are all risk factors for SSC development.[4,5]

Concerning the risk factors for SSC mentioned by Jiang et al., we are happy to provide further details. Apart from one patient with a history of cholecystectomy, none of the patients with CLD and COVID-19 developing SSC had previous cholelithiasis, drug-resistant bacterial infection, biliary tract surgery, or immune dysfunction.

Moreover, Jiang et al. raised the relevant point of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variants. In our study, 50% (n = 5/10) of patients with CLD developing SSC were infected with the initial variation of SARS-CoV-2, whereas the Alpha variant (B.1.1.7) was detected in 40% (n = 4/10), and one patient was infected with the Delta variant (B.1.617.2). Because SARS-CoV-2 superantigen mechanisms in a previously sensitized host may be involved in biliary damage and/or SSC development, future studies should investigate whether distinct variants of SARS-CoV-2 (carrying different viral epitopes) are particularly associated with cholestasis and bile duct damage.

CONFLICT OF INTEREST

Michael Trauner consults for, is on the speakers' bureau for, and received grants from Falk, Gilead, and Intercept. He consults for and received grants from AbbVie and Alberio. He is on the speakers' bureau for and received grants from Merck Sharp & Dohme and Roche. He consults for BiomX, Boehringer Ingelheim, Genfit, Hightide, Shire, Novartis, Pliant, Regulus, and Siemens. He received grants from Alryluem, Cymabay, Janssen, Takeda, and Ultragenyx. He is the coinventor of patents on the medical use of 24-norursodeoxycholic acid.

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