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cancelled but the emergency ones were performed taking all the required protective measures per protocol.

As of April 17, 2020 none of our patients with IBD reported alarming respiratory symptoms or developed COVID-19 infection.

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Conflicts of interest

The authors disclose no conflicts.

Most current article

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COVID-19: An Overview of Worldwide Recommendations for Management of Patients With Liver Diseases or Liver Transplantation



Dear Editor:

We read with great interest the recent article published in *Clinical Gastroenterology and Hepatology* by Donato et al¹ reporting the results of a survey administered to a large sample of transplanted patients during the coronavirus 2019 disease (COVID-19) outbreak. The authors used telemedicine for providing measures to prevent the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and to follow the development of COVID-19 symptoms in transplant recipients in Italy. We provide an overview of the recommendations provided by national and international gastroenterology/hepatology societies for the management of patients with chronic liver diseases

or liver transplantation during the COVID-19 pandemic.

We searched websites of 125 national and international societies of gastroenterology/hepatology from 7 international associations and 83 countries to extract data on the recommendations for management of patients with chronic liver disease, autoimmune hepatitis (AIH), hepatocellular carcinoma (HCC), or liver transplantation during the COVID-19 pandemic ([Supplementary Methods](#)). The final sample included recommendations for patients with chronic liver disease from 20 national or international societies, 7 specifically concerning patients with AIH, 7 for those with HCC, and 9 on liver transplantation ([Supplementary Figure 1](#) and [Supplementary Tables 1-3](#)). Six societies stated that recommendations from other societies should be followed. Therefore, we analyzed the recommendations from 14 societies ([Table 1](#)). Briefly, all societies recommended the use of telemedicine (100%), and 12 societies (86%) recommended temporarily postponing nonurgent appointments. Questionnaire of symptoms (29%) and/or patient's body temperature measurement (29%), limiting the number of consultations per day, and restricting number of family and/or companions (57%) were recommended in case of face-to-face consultation. Few societies recommended checking influenza/*Streptococcus pneumoniae* vaccination (29%), delaying HCC surveillance (29%), and/or postponing all elective/nonurgent liver biopsy or elastography (29%). A majority of the societies recommended temporarily postponing all elective/nonurgent endoscopy examinations (86%) and to continue immunosuppressive therapy (93%). On the other hand, few societies recommended testing for SARS-CoV-2 in patients with hepatic decompensation.

Concerning patients with AIH, HCC, or liver transplantation, telemedicine was recommended extensively for patients with AIH or liver transplantation (86%), but in lower rates for patients with HCC (57%) ([Supplementary Table 1](#)). The maintenance of the same dosage of immunosuppressive agents was highly recommended for patients with AIH (86%) or liver transplantation (100%). The majority of societies (67%) recommended performing SARS-CoV-2 testing for liver transplantation recipients and donors. All 7 societies with recommendations for patients with HCC recommended continuation of HCC therapy, and 4 (57%) of them recommended continuing to perform regular examinations during the pandemic. Most societies recommended performing liver transplantation only for life-threatening situations, such as HCC or acute liver failure.

The impact of COVID-19 in patients with liver diseases or liver transplantation remains unclear. Preliminary results of combined data from registries that have been collecting outcomes of suspected/confirmed COVID-19 in patients with liver diseases

Table 1. Recommendations for the Management of Patients With Chronic Liver Disease During the COVID-19 Pandemic From International/National Societies of Gastroenterology or Hepatology Updated on April 10, 2020

Society name	Date	Screening of symptoms	Check patients' body temperature	Postpone elective consultation	Limit number of patients/family in consultation	Use of telemedicine	Prescription for next month	Vaccination for influenza/S pneumoniae	Continue immunosuppressive therapy	Delay HCC/varices screening	Postpone elective GIE	Postpone elective liver biopsy/TE
International												
European Association for the Study of the Liver	April 2, 2020	NR	NR	Yes	NR	Yes	Yes	Yes	Yes	Yes	Yes	Yes
United States/Canada												
American College of Gastroenterology	March 15, 2020	Yes	Yes	Yes	Yes	Yes	NR	NR	Yes	NR	Yes	NR
American Gastroenterological Association	March 15, 2020	Yes	Yes	Yes	Yes	Yes	NR	NR	Yes	NR	Yes	NR
American Association for the Study of Liver Diseases	April 7, 2020	Yes	Yes	Yes	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes
Europe												
Association Française Pour l'Etude du Foie	April 6, 2020	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Swiss Association for the Study of the Liver	April 3, 2020	NR	NR	Yes	NR	Yes	NR	NR	Yes	NR	Yes	Yes
British Society of Gastroenterology	March 14, 2020	NR	NR	Yes	NR	Yes	NR	NR	Yes	NR	Yes	NR
The British Association for the Study of the Liver	March 18, 2020	NR	NR	Yes	Yes	Yes	NR	NR	Yes	NR	NR	NR
Latin America												
Asociación Argentina para el Estudio de las Enfermedades de Hígado	NA	NR	NR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NR
Sociedade Brasileira de Hepatologia	March 22, 2020	NR	NR	Yes	NR	Yes	Yes	NR	Yes	NR	Yes	NR
Asociación Chilena de Hepatología	NA	NR	NR	NR	NR	Yes	NR	NR	NR	NR	Yes	NR
Asia-Pacific												
Gastroenterological Society of Australia	March 19, 2020	NR	NR	NR	Yes	Yes	NR	Yes	Yes	NR	NR	NR
Pakistan Society for the Study of Liver Diseases	NA	NR	NR	Yes	Yes	Yes	NR	NR	Yes	NR	Yes	NR

Africa
Société Algérienne
d'Hépatologie et
d'Endoscopie
Digestive

NR

Yes

NR

Yes

NR

Yes

Yes

Yes

Yes

NR

NR

NR

NOTE. The Société Algérienne d'Hépatologie et d'Endoscopie Digestive is affiliated with the European Association for the Study of the Liver. The American College of Gastroenterology and the American Gastroenterological Association recommendations were based on a joint document from the American Gastroenterological Association, American College of Gastroenterology, American Association for the Study of Liver Diseases, and American Society of Gastrointestinal Endoscopy. Other recommendations were as follows: continuation of current hepatitis B virus/hepatitis C virus treatment (American Association for the Study of Liver Diseases, European Association for the Study of the Liver, and Gastroenterological Society of Australia), consider delaying new HCV treatments (American Association for the Study of Liver Diseases and Association Française Pour l'Etude du Foie) and test severe acute respiratory syndrome coronavirus 2 in patients with hepatic decompensation (European Association for the Study of the Liver). Urgent procedures that could not be stopped during the coronavirus 2019 pandemic were as follows: liver biopsy to rule out rejection or to diagnose autoimmune hepatitis (American Association for the Study of Liver Diseases, Association Française Pour l'Etude du Foie, and Sociedade Brasileira de Hepatologia), therapeutic paracentesis (American Association for the Study of Liver Diseases and Association Française Pour l'Etude du Foie), transjugular intrahepatic portosystemic shunt (American Association for the Study of Liver Diseases, Sociedade Brasileira de Hepatologia), and upper gastrointestinal endoscopy for variceal bleeding and endoscopic band-ligation (American Association for the Study of Liver Diseases, Association Française Pour l'Etude du Foie, and Sociedade Brasileira de Hepatologia). A total of 6 societies advised following current recommendations for coronavirus 2019 from other societies: United European Gastroenterology (American Association for the Study of Liver Diseases/European Association for the Study of the Liver); World Gastroenterology Organisation (American Association for the Study of Liver Diseases/European Association for the Study of the Liver); Belgian Association for the Study of the Liver (European Association for the Study of the Liver); Société Royale Belge de Gastro-Entérologie (European Association for the Study of the Liver); Indian National Association for Study of the Liver (American Association for the Study of Liver Diseases), and New Zealand Society of Gastroenterology (not reported).
GIE, gastrointestinal endoscopy; NA, not available; NR, not reported; TE, transient elastography.

showed high mortality rates in patients with cirrhosis.² However, there are no published results yet of prospective studies that followed up patients with chronic liver disease/liver transplantation and COVID-19. Telemedicine is low cost, widely available, and well accepted by patients and clinicians.³ However, this technology might be challenged by differences in local regulations for telehealth services and/or reimbursement in each country/region.⁴ The risk of a flare of AIH or acute cellular rejection after liver transplantation secondary to unnecessary immunosuppressive reduction/withdrawal would overcome the risk of SARS-CoV-2 infection.⁵ High rates of hospital admission in critical care units have been leading to a shortage of health care workers, beds, ventilators, and blood products for HCC therapies and liver transplantation during the COVID-19 pandemic. Thus, health authorities should consider deviations from the current standard of care until definitive therapy can be delivered.⁶ It is worth noting that we relied on current available recommendations from international and national societies of gastroenterology/hepatology when writing this article. However, the results of our worldwide overview are aligned with the clinical recommendations and policies to mitigate the impact of the COVID-19 pandemic on patients with chronic liver diseases recently published by expert consensus.^{7,8} Large-scale testing might benefit patients at high risk of complications. Furthermore, while we wait for effective vaccines, the knowledge of the extent of immunity in each country will later guide health authorities to elaborate strategies when facing a potential second wave of COVID-19. Patients with cirrhosis and those on immunosuppressive medicines should be prioritized for testing until further evidence-based data become available.

In summary, worldwide gastroenterology and hepatology societies support the use of telehealth for managing patients with liver disease or liver transplantation. Hepatology and liver transplantation providers should follow the current recommendations to protect their patients during the COVID-19 pandemic. However, future studies addressing the impact of COVID-19 in patients with chronic liver diseases or liver transplantation are needed urgently.

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Supplementary Material

Note: To access the supplementary material accompanying this article, visit the online version of *Clinical Gastroenterology and Hepatology* at www.cghjournal.org, and at <https://doi.org/10.1016/j.cgh.2020.04.074>.

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Conflicts of interest

The authors disclose no conflicts.

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We Know Liver Biochemistries Are Elevated in COVID-19, But Should We Be Concerned?



Dear Editor:

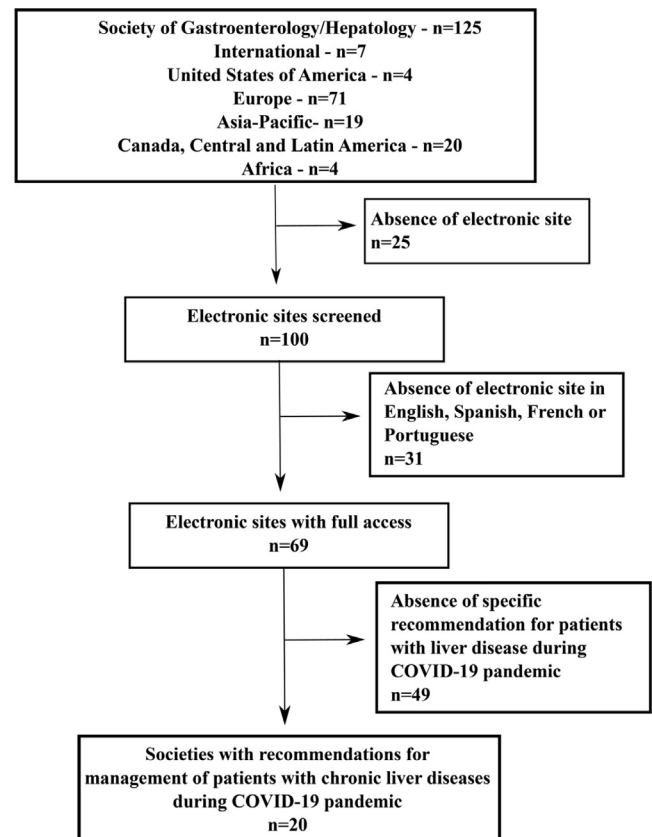
We read with keen interest Fan et al's¹ paper that was recently published in *Clinical Gastroenterology and Hepatology*, as we are being increasingly consulted on the etiology and management of liver biochemistry elevations in patients admitted with coronavirus disease 2019 (COVID-19). This study does an excellent job exonerating certain factors as a cause of elevated admission biochemistries. Fifty-five of 148 (37.2%) patients in this single center from China had abnormal liver biochemistries on admission.¹ This study validated prior work finding that aspartate aminotransferase is the most likely liver biochemistry to be elevated on admission, followed by alanine aminotransferase and, uncommonly, total bilirubin and alkaline phosphatase.^{2,3} They found that patients with elevated admission biochemistries were not more likely to use antibiotic, antiviral, and antipyretic medications prior to hospitalization. They also found that patients with known pre-existing liver disease were evenly balanced between elevated and normal liver biochemistry groups. Patients with elevated admission liver biochemistries were also more likely to have a high-grade fever and higher C-reactive protein (though small effect size), raising the possibility that admission liver biochemistries correlate with the severity of infection. Without clear preadmission drug-induced injury or pre-existing liver disease, it appears that admission liver biochemistries are linked, by some unclear mechanism, to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

Approximately half of patients with normal admission liver biochemistries developed elevated biochemistries in the Fan et al cohort, a mean of 7 days into admission. Another single center from China reported that 76% of patients developed liver biochemistries above the upper limit of normal during hospitalization.⁴ The cause of newly developed liver biochemistry elevations during hospitalization remains unknown. Given that many patients with COVID-19 develop new abnormal biochemistries while hospitalized, the relationship between in-hospital biochemistries and SARS-CoV-2 infection is less clear. In addition, with the known tropism of SARS-CoV-2 for angiotensin-converting enzyme 2 receptors, and their presence on biliary duct cells, one would expect infection to result in a cholestatic pattern of liver injury on presentation; however, this is not the case. Fan et al report that patients receiving lopinavir or ritonavir, and not any other medication, were more likely to have elevated liver biochemistries, but the lack of prospective randomization or controlling for confounding makes causality impossible to conclude. In fact, Lei et al⁵ found that peak aspartate aminotransferase and alanine

Supplementary Methods

To identify the recommendations for care of patients with chronic liver diseases during the COVID-19 pandemic, we performed searches on the websites of the US and international societies of gastroenterology and hepatology (American Association for the Study of Liver Diseases, American College of Gastroenterology, American Gastroenterological Association, American Liver Foundation, Asian Pacific Association for the Study of the Liver, Asian Pacific Association of Gastroenterology, Asociación Latinoamericana para el Estudio del Hígado, European Association for the Study of the Liver, United European Gastroenterology, World Gastroenterology Organisation, and World Hepatitis Alliance) and their affiliated national associations on April 10, 2020. Gastroenterology and hepatology societies/associations

without an available website in English, French, Spanish, or Portuguese, and those without a specific report/statement document for managing patients with chronic liver diseases during the COVID-19 pandemic, were excluded. The following data were extracted from documents uploaded by each society: date of the recommendation, suggestions to temporarily postpone elective consultations and nonurgent procedures, to use telemedicine/telehealth for consultations, to limit patients/family members in clinics and to screen signs/symptoms in those individuals attending face-to-face consultations, to prescribe medical prescriptions for the next months, to check vaccination records, and recommendations on the use of immunosuppressive agents during the COVID-19 pandemic. Moreover, we collected specific recommendations for patients with AIH, HCC, and recipients of liver transplantation when available.



Supplementary Figure 1. Flowchart of the identified recommendations for management of patients with liver diseases during coronavirus 2019 pandemic.

Supplementary Table 1. Recommendations for the Management of Patients With Autoimmune Hepatitis or Hepatocellular Carcinoma and for Liver Transplantation During the COVID-19 Pandemic From International/ National Societies of Gastroenterology or Hepatology Updated on April 10, 2020

Society	Region	Continue immunosuppressive therapy	Use of telemedicine	Prescription for next month	Vaccination for influenza/S pneumoniae
Autoimmune hepatitis					
European Association for the Study of the Liver	International	Yes	Yes	Yes	Yes
American Association for the Study of Liver Diseases	United States/Canada	Yes	Yes	Yes	NR
Belgian Association for the Study of the Liver	Europe	NR	NR	NR	NR
Association Française Pour l'Etude du Foie	Europe	Yes	Yes	Yes	Yes
Swiss Association for the Study of the Liver	Europe	Yes	Yes	NR	NR
The British Association for the Study of the Liver	Europe	Yes	Yes	NR	NR
New Zealand Society of Gastroenterology	Asia-Pacific	Yes	Yes	NR	NR
Hepatocellular carcinoma					
		Continue HCC therapy			Continue examinations and evaluations
European Association for the Study of the Liver	International	Yes	Yes	Yes	NR
American Association for the Study of Liver Diseases	United States/Canada	Yes	Yes	Yes	NR
Association Française Pour l'Etude du Foie	Europe	Yes	NR	NR	NR
Swiss Association for the Study of the Liver	Europe	Yes	NR	NR	NR
Asociación Argentina para el Estudio de las Enfermedades de Hígado	Latin America	Yes	NR	NR	NR
Sociedade Brasileira de Hepatologia	Latin America	Yes	Yes	Yes	NR
New Zealand Society of Gastroenterology	Asia-Pacific	Yes	Yes	Yes	NR
Liver transplantation					
		Continue immunosuppressive therapy			Test SARS-CoV-2 for recipients and donors
European Association for the Study of the Liver	International	Yes	Yes	Yes	Yes
American Association for the Study of Liver Diseases	United States/Canada	Yes	Yes	Yes	NR
Belgian Association for the Study of the Liver	Europe	Yes	NR	Yes	NR
Swiss Association for the Study of the Liver	Europe	Yes	Yes	NR	Yes
British Society of Gastroenterology	Europe	Yes	Yes	NR	NR
The British Association for the Study of the Liver	Europe	Yes	Yes	Yes	NR
Sociedade Brasileira de Hepatologia	Latin America	Yes	Yes	Yes	NR
Indian National Association for Study of the Liver	Asia-Pacific	Yes	Yes	Yes	NR
New Zealand Society of Gastroenterology	Asia-Pacific	Yes	Yes	NR	NR

NOTE. The Belgian Association for the Study of the Liver (Belgium) and the Sociedade Brasileira de Hepatologia (Brazil) recommended continuing performing liver transplantation for all patients; the European Association for the Study of the Liver/American Association for the Study of Liver Diseases (International), British Society of Gastroenterology/British Association for the Study of the Liver (United Kingdom), and the New Zealand Society of Gastroenterology (New Zealand) recommended performing liver transplantation only for life-threatening situations, such as HCC and acute liver failure. HCC, hepatocellular carcinoma; NR, not reported; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

Supplementary Table 2. Gastroenterology/Hepatology Societies Accessed to Review the Recommendations for Management of Patients With Chronic Liver Diseases or Transplantation During the COVID-19 Pandemic: Updated on April 10, 2020

Country	Society name	Member	URL
International	Asociacion Latinoamericana para el Estudio del Hígado	Not applicable	https://alehatam.org/
International	Asian Pacific Association for the Study of the Liver	Not applicable	http://apasl.info/
International	Asian Pacific Association of Gastroenterology	Not applicable	http://www.apage.org/index.html
International	European Association for the Study of the Liver	Not applicable	https://easl.eu/
International	United European Gastroenterology	Not applicable	https://www.ueg.eu/home/
International	World Gastroenterology Organisation	Not applicable	http://www.worldgastroenterology.org/
International	World Hepatitis Alliance	Not applicable	https://www.worldhepatitisalliance.org/
United States	American College of Gastroenterology	Not applicable	https://gi.org/
United States	American Gastroenterological Association	Not applicable	https://www.gastro.org/
United States	American Association for the Study of Liver Diseases	Not applicable	https://www.aasld.org/
United States	American Liver Foundation	Not applicable	https://liverfoundation.org/
Europe			
Albania	Shoqata Shqiptare Gastro-Entero-Hepatologjisë	UEG	Not available
Armenia	Armenian Gastroenterology Association	UEG	Not available
Armenia	Armenian Hepatological Forum	EASL	Not available
Austria	Österreichische Gesellschaft für Gastroenterologie und Hepatologie	UEG/EASL	http://www.oeggh.at/
Azerbaijan	Azerbaijan Gastroenterologists and Hepatologists Society	UEG/EASL	http://qastro-hep.az/
Belarus	Byelorussian Gastroenterology Association	EASL	
Belgium	Société Royale Belge de Gastro-Entérologie	UEG	http://www.srbge.be
Belgium	Vlaamse Vereniging voor Gastroenterologie	UEG	http://www.vvge.be
Belgium	Belgian Association for the Study of the Liver	EASL	www.basl.be
Bosnia and Hercegovina	Association of Gastroenterohepatologists in Bosnia and Hercegovina	UEG/EASL	http://www.geha.ba
Bulgaria	Bulgarian Society of Gastroenterology	UEG/EASL	http://www.bsg.bg
Croatia	Hrvatsko gastroenterološko društvo	UEG/EASL	http://www.hgd.hr
Czech Republic	Czech Society of Gastroenterology	UEG	http://www.cgs-cls.cz
Czech Republic	Czech Society of Hepatology	EASL	www.ces-hep.cz
Denmark	Danish Gastroenterology and Hepatology Association	UEG/EASL	http://www.dsg.dk
Estonia	Eesti Gastroenteroloogide Selts, Estonian Society of Gastroenterology	UEG/EASL	Not available
Finland	Suomen Gastroenterologiyhdistys ry	UEG/EASL	http://www.gastroenterologiyhdistys.fi
France	Société Nationale Française de Gastro-Entérologie	UEG	https://www.snfg.org
France	Association Française Pour l'Etude du Foie	EASL	www.afef.asso.fr
Georgia	Georgian National Gastroenterology And Hepatology Society	UEG/EASL	Not available
Germany	Deutsche Gesellschaft für Gastroenterologie, Verdauungs- und Stoffwechselkrankheiten	UEG	http://www.dgvs.de
Germany	German Society for the Study of the Liver	EASL	www.gasl.de
Greece	Hellenic Society of Gastroenterology	UEG	http://www.hsg.gr
Greece	Hellenic Association for the Study of the Liver	EASL	www.eemh.gr
Hungary	Magyar Gasztroenterológiai Társaság	UEG	http://www.gastroent.hu
Hungary	Hungarian Liver Research Society	EASL	Not available
Ireland	Irish Society of Gastroenterology	UEG/EASL	http://www.isge.ie
Israel	Israel Gastroenterological Association	UEG	http://gastro.doctorsonly.co.il/
Israel	Israel Association for the Study of Liver Diseases	EASL	Not available
Italy	Associazione Italiana Gastroenterologi ed Endoscopisti Digestivi Ospedalieri	UEG	http://www.webaigo.it/
Italy	Società Italiana di Gastroenterologia ed Endoscopia Digestiva	UEG	http://www.sigeitalia.it
Italy	Italian Association for the Study of the Liver Associazione Italiana per lo Studio del Fegato	EASL	www.webaisf.org

Supplementary Table 2. Continued

Country	Society name	Member	URL
Kazakhstan	GastroHepatoTransplantGroup Astana	EASL	Not available
Kosovo	Shoqata e Gastroenterologëve të Kosovës	UEG	https://www.shgk-rks.org/
Latvia	Gastroenterologijas Atbalsta Biedriba	UEG	http://www.gastroenterologs.lv
Latvia	Latvian Association of Infectologists and Hepatologists	EASL	Not available
Lithuania	Lietuvos Gastroenterology Draugija	UEG/EASL	http://www.gastroenterologija.lt/
Luxembourg	Société Luxembourgeoise de Gastro-Entérologie	UEG	Not available
Mediterranean	Mediterranean Association for the Study of the Liver	EASL	Not available
Montenegro	Gastroenterohepatology Association of Montenegro	UEG	http://www.ugcg.me
North Macedonia	North Macedonian Society of Gastroenterohepatology	UEG	Not available
Norway	Norsk Gastroenterologisk Forening	UEG/EASL	https://www.legeforeningen.no/
Poland	Polskie Towarzystwo Gastroenterologii	UEG	http://www.ptg-e.org.pl
Poland	Polish Association for the Study of the Liver	EASL	www.pasl.pl
Portugal	Sociedade Portuguesa de Gastroenterologia	UEG	http://www.spg.pt
Portugal	Associação Portuguesa para o Estudo do Fígado	EASL	Not available
Romania	Societatea Română de Gastroenterologie și Hepatologie	UEG	http://www.srgh.ro
Romania	Romanian Association for Liver Diseases	EASL	www.roald.ro
Russia	Russian Gastroenterological Association	UEG	Not available
Russian Federation	Russian Scientific Liver Society	EASL	www.rsls.ru
Serbia	Serbian Gastroenterology Association	UEG	http://www.ugs.rs
Serbia	Hepatology section of the Serbian Medical Society	EASL	http://hepatoloska.sld.org.rs
Slovakia	Slovenská Gastroenterologická Spoločnosť	UEG	http://www.sgssls.sk
Slovakia	Slovak Society of Hepatology	EASL	www.hepatology.sk
Slovenia	Slovenian Society of Gastroenterology	UEG/EASL	http://www.szgh.si
Spain	Asociación Española de Gastroenterología	UEG	http://www.aegastro.es/
Spain	Sociedad Española de Patología Digestiva	UEG	http://www.sepd.es
Spain	Asociación Española para el Estudio del Hígado	EASL	www.aeeh.es
Sweden	Svensk Gastroenterologisk Förening	UEG/EASL	http://www.svenskgastroenterologi.se/
Switzerland	Schweizerische Gesellschaft für Gastroenterologie	UEG	http://www.sggssg.ch
Switzerland	Swiss Association for the Study of the Liver	EASL	www.sasl.ch
The Netherlands	Nederlandse Vereniging voor Gastro-Enterologie	UEG	http://www.nvge.nl
The Netherlands	Nederlandse Vereniging van Maag-Darm-Leverartsen	UEG	http://www.mdl.nl
The Netherlands	Hepatology Dutch Society for Hepatology	EASL	www.nvh.nl
Tunisia	Société Tunisienne de Gastro-Entérologie	UEG	http://www.stge.org.tn
Turkey	Türk Gastroenteroloji Derneği	UEG	http://www.tgd.org.tr
Turkey	Turkish Association for the Study of the Liver	EASL	http://tasl.org.tr
Ukraine	Ukrainian Gastroenterological Association	UEG	http://ukrgastro.com.ua/
Ukraine	Ukrainian Association for the Study of the Liver Disease	EASL	Not available
United Kingdom	British Society of Gastroenterology	UEG	https://www.bsg.org.uk/
United Kingdom	The British Association for the Study of the Liver	EASL	www.basl.org.uk
Central and Latin America			
Argentina	Asociación Argentina para el Estudio de las Enfermedades de Hígado	ALEH	www.aeeh.org.ar
Brazil	Sociedade Brasileira de Hepatologia	ALEH	www.sbhepatologia.org.br
Bolivia	Sociedad Boliviana de Gastroenterología y Endoscopia Digestiva	ALEH	www.gastrobolivia.org
Chile	Asociación Chilena de Hepatología	ALEH	www.sociedadgastro.cl
Colombia	Asociación Colombiana de Hepatología	ALEH	www.higadocolombia.org
Costa Rica	Asociación Costarricense de Especialistas en Gastroenterología y Endoscopia	ALEH	www.gastroenterologoscr.com
Cuba	Sociedad Cubana de Gastroenterología	ALEH	Not available

Supplementary Table 2. Continued

Country	Society name	Member	URL
Ecuador	Sociedad de Gastroenterología de Ecuador	ALEH	http://www.gastroquito.med.ec
Guatemala	Asociación Guatemalteca de Gastroenterología, Hepatología y Endoscopia Gastrointestinal	ALEH	www.gastroenterologosdeguatemala.org
Honduras	Asociación Hondureña de Gastroenterología	ALEH	www.asociaciondegastroenterologiadehonduras.org
Mexico	Asociación Mexicana de Hepatología	ALEH	www.hepatologia.org.mx
Paraguay	Sociedad Paraguaya de Gastroenterología y Endoscopia Digestiva	ALEH	www.spge.org.py
Panama	Asociación Panameña de Gastroenterología y Endoscopia Digestiva	ALEH	https://gastropanama.org/
Peru	Asociación Peruana de Hepatología	ALEH	http://apeh.com.pe
Puerto Rico	Asociación Puertorriqueña de Gastroenterología	ALEH	www.prgastro.org
Republica Dominicana	Sociedad Dominicana de Gastroenterología	ALEH	www.sodogastro.com
Uruguay	Sociedad de Gastroenterología del Uruguay	ALEH	www.sgu.org.uy
Venezuela	Sección Hepatología de Sociedad Venezolana de Gastroenterología	ALEH	www.ovegastro.org
Canada			
Canada	Canadian Association of Gastroenterology	United States/Canada	https://www.cag-acg.org/
Canada	Canadian Association for the Study of the Liver	United States/Canada	https://hepatology.ca/about-casl/
Asia-Pacific region			
Australia	Australasian Hepatology Association	APASL	http://www.hepatologyassociation.com.au/
Australia	Gastroenterological Society of Australia	APASL	http://www.gesa.org.au/
China	Chinese Society of Gastroenterology	APASL	http://www.csge.org/
Singapore	Gastroenterological Society of Singapore	APASL	http://www.gastro.org.sg/
Thailand	The Gastroenterological Association of Thailand	APASL	http://www.gastrothai.net/eng/index.php
Thailand	Thai Association for the Study of the Liver	APASL	https://thasl.org/en/homepage/
Philippines	Hepatology Society of the Philippines	APASL	https://hsp.org.ph/
Hong Kong	The Hong Kong Society of Gastroenterology	APASL	http://www.hksge.org/home.htm
India	Indian National Association for Study of the Liver	APASL	http://www.inasl.org/in/
Indonesia	Indonesian Association for the Study of the Liver	APASL	http://pphi-online.org/alpha/
South Korea	Korean Society of Gastroenterology	APASL	http://www.gastrokorea.org/eng/about/about.html
Malaysia	Malaysian Liver Foundation	APASL	http://www.liver.org.my/welcome.php
Malaysia	Malaysian Society of Gastroenterology and Hepatology	APASL	http://www.msgh.org.my/
Nepal	Nepalese Association for the Studies of the Liver	APASL	http://naslnepal.com/
New Zealand	New Zealand Society of Gastroenterology Inc.	APASL	http://www.nzsg.org.nz/
Pakistan	Pakistan Society for the Study of Liver Diseases	APASL	http://pssld.org.pk/
Pakistan	Pakistan Society of Gastroenterology and GI Endoscopy	APASL	http://www.psg.org.pk/
Sri Lanka	Sri Lanka Society of Gastroenterology	APASL	http://slsg.lk/eng/index.php/en/
South Asia	South Asian Association for the Study of the Liver	APASL	http://saasl.org/
Africa			
Algeria	Société Algérienne d'Hépatogastro-entérologie et d'Endoscopie digestive	UEG	http://www.sahgeed.com
Egypt	Egyptian Association for Research and Training in Hepatogastroenterology	UEG	Not available
Egypt	Egyptian Association for the Study of Gastrointestinal and Liver Disease	APASL	http://www.easgld.org/index.htm
Morocco	Société Marocaine des Maladies de l'Appareil Digestif	UEG	http://www.smmad-ma.com

ALEH, Asociación Latinoamericana para el Estudio del Hígado; APASL, Asian Pacific Association for the Study of the Liver; EASL, European Association for the Study of the Liver; UEG, United European Gastroenterology.

Supplementary Table 3. Web Links of Recommendations for Management of Patients With Chronic Liver Diseases or Liver Transplantation During the COVID-19 Pandemic From International/National Societies of Gastroenterology/Hepatology Updated on April 10, 2020

Country	Society name	Web-site in English, French, Spanish, or Portuguese	Date of recommendation	URL of recommendation for management of patients with chronic liver diseases during COVID-19 pandemic
International	Asociacion Latinoamericana para el Estudio del Hgado	Yes	Not available	
International	Asian Pacific Association for the Study of the Liver	Yes	Not available	
International	Asian Pacific Association of Gastroenterology	Yes	Not available	
International	European Association for the Study of the Liver	Yes	April 2, 2020	https://easl.eu/news/easl-escmid-position-paper-on-covid19-and-the-liver/
International	United European Gastroenterology	Yes	Not reported	https://www.ueg.eu/news/news/news-details/article/covid-19-scientific-information-for-the-digestive-health-community/
International	World Gastroenterology Organisation	Yes	Not reported	https://www.worldgastroenterology.org/about-wgo/media-center/covid-19—a-message-from-wgo-president?utm_source=WGOBanner&utm_medium=Homepage&utm_campaign=WGOBanner_Homepage_COVID19#Patients%20Liver%20Disease
International	World Hepatitis Alliance	Yes	Not available	
United States	American College of Gastroenterology	Yes	March 15, 2020	https://gi.org/media/covid-19-and-gi/
United States	American Gastroenterological Association	Yes	March 15, 2020	https://www.gastro.org/press-release/joint-gi-society-message-covid-19-clinical-insights-for-our-community-of-gastroenterologists-and-gastroenterology-care-providers
United States	American Association for the Study of Liver Diseases	Yes	April 7, 2020	https://www.aasld.org/about-aasld/covid-19-resources
United States	American Liver Foundation	Yes	Not available	
Europe				
Albania	Shoqata Shqiptare Gastro-Entero-Hepatologjisë	No	Not available	
Armenia	Armenian Gastroenterology Association	No	Not available	
Armenia	Armenian Hepatological Forum	No	Not available	
Austria	Österreichische Gesellschaft für Gastroenterologie und Hepatologie	No	Not available	
Azerbaijan	Azerbaijan Gastroenterologists and Hepatologists Society	Yes	Not available	
Belarus	Byelorussian Gastroenterology Association	No	Not available	
Belgium	Société Royale Belge de Gastro-Entérologie	Yes	March 18, 2020	https://www.srbge.be/wp-content/uploads/2020/03/200322_SRBGE_procedure_ambu_privé.pdf
Belgium	Vlaamse Vereniging voor Gastroenterologie	No	Not available	
Belgium	Belgian Association for the Study of the Liver	Yes	Not reported	https://www.basl.be/news/covid-19-and-liver/
Bosnia and Hercegovina	Association of Gastroenterohepatologists in Bosnia and Hercegovina	No	Not available	

Supplementary Table 3. Continued

Country	Society name	Web-site in English, French, Spanish, or Portuguese	Date of recommendation	URL of recommendation for management of patients with chronic liver diseases during COVID-19 pandemic
Bulgaria	Bulgarian Society of Gastroenterology	No	Not available	
Croatia	Hrvatsko gastroenterološko društvo	No	Not available	
Czech Republic	Czech Society of Gastroenterology	Yes	Not available	
Czech Republic	Czech Society of Hepatology	No	Not available	
Denmark	Danish Gastroenterology and Hepatology Association	No	Not available	
Estonia	Eesti Gastroenteroloogide Selts, Estonian Society of Gastroenterology	No	Not available	
Finland	Suomen Gastroenterologiyhdistys ry	No	Not available	
France	Société Nationale Française de Gastro-Entérologie	Yes	Not available	
France	Association Française Pour l'Etude du Foie	Yes	April 6, 2020	https://afef.asso.fr/article_actu/covid-19-foie-retrouvez-lensemble-des-informations/
Georgia	Georgian National Gastroenterology And Hepatology Society	No	Not available	
Germany	Deutsche Gesellschaft für Gastroenterologie, Verdauungs- und Stoffwechselkrankheiten	No	Not available	
Germany	German Society for the Study of the Liver	No	Not available	
Greece	Hellenic Society of Gastroenterology	No	Not available	
Greece	Hellenic Association for the Study of the Liver	No	Not available	
Hungary	Magyar Gasztroenterológiai Társaság	Yes	Not available	
Hungary	Hungarian Liver Research Society	No	Not available	
Ireland	Irish Society of Gastroenterology	Yes	Not available	
Israel	Israel Gastroenterological Association	No	Not available	
Israel	Israel Association for the Study of Liver Diseases	No	Not available	
Italy	Associazione Italiana Gastroenterologi ed Endoscopisti Digestivi Ospedalieri	No	Not available	
Italy	Società Italiana di Gastroenterologia ed Endoscopia Digestiva	No	Not available	
Italy	Italian Association for the Study of the Liver Associazione Italiana per lo Studio del Fegato	Yes	Not available	
Kazakhstan	GastroHepatoTransplantGroup Astana	No	Not available	
Kosovo	Shoqata e Gastroenterologëve të Kosovës	No	Not available	
Latvia	Gastroenterologijas Atbalsta Biedriba	Yes	Not available	
Latvia	Latvian Association of Infectologists and Hepatologists	No	Not available	
Lithuania	Lietuvos Gastroenterology Draugija	No	Not available	

Supplementary Table 3. Continued

Country	Society name	Web-site in English, French, Spanish, or Portuguese	Date of recommendation	URL of recommendation for management of patients with chronic liver diseases during COVID-19 pandemic
Luxembourg	Société Luxembourgeoise de Gastro-Entérologie	No	Not available	
Mediterranean	Mediterranean Association for the Study of the Liver	No	Not available	
Montenegro	Gastroenterohepatology Association of Montenegro	Yes	Not available	
North Macedonia	North Macedonian Society of Gastroenterohepatology	No	Not available	
Norway	Norsk Gastroenterologisk Forening	No	Not available	
Poland	Polskie Towarzystwo Gastroenterologii	Yes	Not available	
Poland	Polish Association for the Study of the Liver	No	Not available	
Portugal	Sociedade Portuguesa de Gastrenterologia	Yes	Not available	
Portugal	Associação Portuguesa para o Estudo do Fígado	No	Not available	
Romania	Societatea Română de Gastroenterologie și Hepatologie	No	Not available	
Romania	Romanian Association for Liver Diseases	Yes	Not available	
Russian Federation	Russian Gastroenterological Association	No	Not available	
Russia	Russian Scientific Liver Society	No	Not available	
Serbia	Serbian Gastroenterology Association	No	Not available	
Serbia	Hepatology section of the Serbian Medical Society	No	Not available	
Slovakia	Slovenská Gastroenterologická Spoločnosť	No	Not available	
Slovakia	Slovak Society of Hepatology	No	Not available	
Slovenia	Slovenian Society of Gastroenterology	No	Not available	
Spain	Asociación Española de Gastroenterología	Yes	Not available	
Spain	Sociedad Española de Patología Digestiva	Yes	Not available	
Spain	Asociacion Espanola para el Estudio del Hígado	Yes	Not available	
Sweden	Svensk Gastroenterologisk Förening	No	Not available	
Switzerland	Schweizerische Gesellschaft für Gastroenterologie	Yes	Not available	
Switzerland	Swiss Association for the Study of the Liver	Yes	April 3, 2020	https://sas1.unibas.ch/guidelines/SASL-Swiss%20hepatitis-SARS-CoV-2%20Recommendations%20French.pdf
The Netherlands	Nederlandse Vereniging voor Gastro-Enterologie	No	Not available	
The Netherlands	Nederlandse Vereniging van Maag-Darm-Leverartsen	No	Not available	
The Netherlands	Hepatology Dutch Society for Hepatology	No	Not available	
Tunisia	Société Tunisienne de Gastro-Entérologie	Yes	Not available	
Turkey	Türk Gastroenteroloji Derneği	No	Not available	
Turkey	Turkish Association for the Study of the Liver	Yes	Not available	

Supplementary Table 3. Continued

Country	Society name	Web-site in English, French, Spanish, or Portuguese	Date of recommendation	URL of recommendation for management of patients with chronic liver diseases during COVID-19 pandemic
Ukraine	Ukrainian Gastroenterological Association	No	Not available	
Ukraine	Ukrainian Association for the Study of the Liver Disease	No	Not available	
United Kingdom	British Society of Gastroenterology	Yes	March 14, 2020	https://www.bsg.org.uk/covid-19-advice/bsg-and-basl-covid-19-advice-for-healthcare-professionals-in-gastroenterology-and-hepatology/
United Kingdom	The British Association for the Study of the Liver	Yes	March 18, 2020	https://www.basl.org.uk/index.cfm/news/list/cid/8
Central and Latin America				
Argentina	Asociación Argentina para el Estudio de las Enfermedades de Hígado	Yes	Not reported	http://www.aaeeh.org.ar/index.php/profesionales/recomendaciones-covid19
Brazil	Sociedade Brasileira de Hepatologia	Yes	March 22, 2020	http://sbhepatologia.org.br/noticias/sbh-emite-nota-tecnica-sobre-covid-19/
Bolivia	Sociedad Boliviana de Gastroenterología y Endoscopia Digestiva	No	Not available	
Chile	Asociación Chilena de Hepatología	Yes	Not reported	http://www.sociedadgastro.cl/gastroweb/index.php/noticias/426-comunicado-conjunto-schge-asociaciones-agrupaciones-y-filiales-covid-19-mensaje-a-socios-sociedad-chilena-de-gastroenterologia-schge
Colombia	Asociación Colombiana de Hepatología	Yes	Not available	
Costa Rica	Asociación Costarricense de Especialistas en Gastroenterología y Endoscopia	Yes	Not available	
Cuba	Sociedad Cubana de Gastroenterología	No	Not available	
Ecuador	Sociedad de Gastroenterología de Ecuador	Yes	Not available	
Guatemala	Asociación Guatemalteca de Gastroenterología, Hepatología y Endoscopia Gastrointestinal	Yes	Not available	
Honduras	Asociación Hondureña de Gastroenterología	Yes	Not available	
Mexico	Asociación Mexicana de Hepatología	Yes	Not available	
Paraguay	Sociedad Paraguaya de Gastroenterología y Endoscopia Digestiva	Yes	Not available	
Panama	Asociación Panameña de Gastroenterología y Endoscopia Digestiva	Yes	Not available	
Peru	Asociación Peruana de Hepatología	Yes	Not available	
Puerto Rico	Asociación Puertorriqueña de Gastroenterología	Yes	Not available	
Republica Dominicana	Sociedad Dominicana de Gastroenterología	Yes	Not available	

Supplementary Table 3. Continued

Country	Society name	Web-site in English, French, Spanish, or Portuguese	Date of recommendation	URL of recommendation for management of patients with chronic liver diseases during COVID-19 pandemic
Uruguay	Sociedad de Gastroenterología del Uruguay	Yes	Not available	
Venezuela	Sección Hepatología de Sociedad Venezolana de Gastroenterología	Yes	Not available	
Canada	Canadian Association of Gastroenterology	Yes	Not available	
Canada	Canadian Association for the Study of the Liver	Yes	Not available	
Asia-Pacific region				
Australia	Australasian Hepatology Association	Yes	Not available	
Australia	Gastroenterological Society of Australia	Yes	March 19, 2020	https://www.gesa.org.au/resources/covid-19
China	Chinese Society of Gastroenterology	Yes	Not available	
Singapore	Gastroenterological Society of Singapore	Yes	Not available	
Thailand	The Gastroenterological Association of Thailand	No	Not available	
Thailand	Thai Association for the Study of the Liver	Yes	Not available	
Philippines	Hepatology Society of the Philippines	Yes	Not available	
Hong Kong	The Hong Kong Society of Gastroenterology	Yes	Not available	
India	Indian National Association for Study of the Liver	Yes	March 23, 2020	http://www.inasl.org.in/covid19.php
Indonesia	Indonesian Association for the Study of the Liver	Yes	Not available	
South Korea	Korean Society of Gastroenterology	Yes	Not available	
Malaysia	Malaysian Liver Foundation	No	Not available	
Malaysia	Malaysian Society of Gastroenterology and Hepatology	Yes	Not available	
Nepal	Nepalese Association for the Studies of the Liver	Yes	Not available	
New Zealand	New Zealand Society of Gastroenterology, Inc	Yes	March 31, 2020	https://nzsg.org.nz/news-and-events/article/3485
Pakistan	Pakistan Society for the Study of Liver Diseases	Yes	Not reported	https://pssld.com.pk/zaigham-COVID_PSSLD.pdf
Pakistan	Pakistan Society of Gastroenterology and GI Endoscopy	No	Not available	
Sri Lanka	Sri Lanka Society of Gastroenterology	Yes	Not available	
South Asia	South Asian Association for the Study of the Liver	Yes	Not available	
Africa				
Algeria	Société Algérienne d'Hépatogastro-entérologie et d'Endoscopie digestive	Yes	March 15, 2020	https://sahgeed.com/upload/COVID-19-SAHGEED.pdf
Egypt	Egyptian Association for Research and Training in Hepatogastroenterology	No	Not available	
Egypt	Egyptian Association for the Study of Gastrointestinal and Liver Disease	No	Not available	
Morocco	Société Marocaine des Maladies de l'Appareil Digestif	No	Not available	