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LETTER TO THE EDITOR

Impact of COVID-19 on the clinical status of patients with Wilson disease

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Abstract

The coronavirus disease 2019 (COVID-19) pandemic has greatly impacted health systems. Many guidelines on chronic liver diseases have been released to optimize the use of medical resources and patient management. However, most of these guidelines have been established through expert consensus because the existing data do not provide strong evidence for developing effective recommendations. As Wilson disease (WD) is a rare chronic liver disease, the impact of COVID-19 on the clinical status of patients with WD is unclear. The present study showed a marked shortage of medical resources for clinically managing patients with WD during the pandemic. Although patients with WD who consistently took anticopper therapy showed no significant differences in hepatic and extrahepatic markers before and after the pandemic, their complication incidences, especially the infection incidence, were significantly increased during the study period. Therefore, patients with WD should be encouraged to adhere to anticopper therapy and be closely monitored to prevent infections and other complications. The present study provides a clinical basis for further managing WD during the pandemic.

Key Words: Coronavirus disease 2019; Wilson disease; Clinical status; Complications; Infections; Anticopper therapy

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Core Tip: The coronavirus disease 2019 (COVID-19) pandemic has had a long-lasting impact on the quality of care for patients with cirrhosis. Although many guidelines have been released for the rational use of medical resources, few clinical data are available to support these guidelines. The clinical features of patients with Wilson disease during the COVID-19 pandemic remain unclear. We compared the clinical features of patients with Wilson disease before and after the pandemic to clarify the impact of COVID-19 on these patients and provide a basis for their clinical management.

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TO THE EDITOR

Many countries have enforced social distancing and strict stay-at-home strategies to reduce the spread of coronavirus disease 2019 (COVID-19). However, these measures often negatively affect patients with other diseases[1,2]. Many guidelines on chronic liver diseases have been released to optimize the use of medical resources and patient management[3]. Most of these guidelines have been established through expert consensus because the existing data do not provide strong evidence for developing effective recommendations.

Given the high copper deposition in the livers of patients with Wilson disease (WD), these patients often develop liver injury and cirrhosis. Because WD has clinical features that are distinct from those of liver diseases caused by other etiologies and medical resources have been in short supply during the pandemic, the clinical features of patients with WD should be examined to improve their management. Therefore, we conducted a before–after study to investigate the clinical features of these patients before and during COVID-19.

We reviewed the medical records of patients with WD who were hospitalized for routine office visits or emergency visits at the First Affiliated Hospital of Guangdong Pharmaceutical University from 1 January 2018 to 3 September 2020. In China, the diagnostic criteria for WD are similar to those of the diagnostic scoring system for WD. During the COVID-19 pandemic, the number of WD inpatient visits dropped from 198 to 95, indicating a 52.02% decrease from the number of WD inpatient visits during the same period in 2019. These data indicate that the ongoing pandemic has led to a marked shortage of medical resources for clinically managing patients with WD. Medical data on 68 patients with WD who were hospitalized at our hospital during and before the pandemic were analyzed. All of these patients underwent anticopper therapy during the pandemic. Most of them (83.82%) had developed cirrhosis before the pandemic, and none had COVID-19.

The hepatic and extrahepatic status of patients who consistently used anticopper therapy during the pandemic did not significantly deteriorate (Table 1). However, owing to lifestyle changes and delayed screening for complications during the pandemic, the complication incidence increased significantly in these patients during the study period (23.53% *vs* 11.76%, $P = 0.021$). Notably, most complications (22/24) occurred in patients with WD-associated cirrhosis. Among the complications, infections were the most prevalent (11.8% *vs* 1.5%, $P = 0.016$). Although the community mitigation measures for COVID-19 are thought to reduce the incidence of respiratory infections in the general population[4], our data showed that the incidence of respiratory infections in patients with WD increased during the pandemic (7.4% *vs* 0%, $P = 0.063$).

Following the COVID-19 outbreak, the Chinese government implemented strong strict measures, and most citizens, except those involved in essential services, were ordered to stay at home. These measures helped keep the pandemic under control in China. However, the lockdown and movement restrictions often led to reduced physical activity, prolonged sedentary behaviors, imbalanced nutritional intake, poor mental health and delayed routine follow-up visits in these patients[5]. These changes were associated with cirrhosis-associated immune dysfunction and accounted for the

Table 1 Clinical features and complications in patients with Wilson disease before and after coronavirus disease 2019

	Before COVID-19 (*n* = 68)	After COVID-19 (*n* = 68)	*P* value
Demographic characteristics			
Age (yr)	28.00 (23.00–33.00)		-
Male sex	37 (54.41)		-
Hepatic features			
Elevated ALT (> 40 U/L)	16 (23.53)	12 (17.65)	0.424
Elevated AST (> 35 U/L)	13 (19.12)	17 (25.00)	0.388
Elevated bilirubin (> 17.1 μmol/L)	15 (22.06)	13 (19.12)	0.754
Hypoproteinemia (albumin < 35 g/L)	10 (14.71)	12 (17.65)	0.774
Elevated PT (> 15 s)	11 (16.18)	13 (19.12)	0.791
Elevated INR (> 1.5)	1 (1.47)	2 (2.94)	1.000
Child-Pugh			1.000
A	64 (94.12)	65 (95.59)	
B/C	4 (5.88)	3 (4.41)	
Cirrhosis	57 (83.82)	57 (83.82)	1.000
Extrahepatic features			
Neurological manifestations	50 (73.5)	49 (72.1)	1.000
Psychiatric manifestations	3 (4.4)	4 (5.9)	1.000
Kayser-Fleischer ring	32 (47.1)	35 (51.5)	0.375
Splenomegaly/splenectomy	45 (66.2)	47 (69.1)	0.688
Complications			
Any complication	8 (11.76)	16 (23.53)	0.021
Ascites	2 (1.5)	5 (7.4)	0.375
Infections	1 (1.5)	8 (11.8)	0.016
Respiratory infection	0 (0)	5 (7.4)	0.063
Urinary infection	0 (0)	1 (1.5)	1.000
Gastrointestinal infection	1 (1.5)	2 (2.9)	1.000
SBP	0 (0)	1 (1.5)	1.000
PVT	0 (0)	0 (0)	-
Gastroesophageal varices	5 (7.4)	7 (10.3)	0.500
Variceal bleeding	0 (0)	1 (1.5)	1.000
Hepatic encephalopathy	0 (0)	0 (0)	-
Renal impairment	0 (0)	0 (0)	-
Liver failure	0 (0)	0 (0)	-
HCC	0 (0)	0 (0)	-

Data are presented as medians (interquartile ranges) or *n* (%). ALT: Alanine transaminase; AST: Aspartate transaminase; HCC: Hepatocellular carcinoma; INR: International normalized ratio; PT: Prothrombin time; PVT: Portal vein thrombosis; SBP: Spontaneous bacterial peritonitis; COVID-19: Coronavirus disease 2019.

high infection risk[6].

In conclusion, the hepatic and extrahepatic status of patients with WD who adhered strictly to their anticopper therapy during the COVID-19 pandemic did not significantly worsen, but the complication incidence — especially the infection incidence — increased significantly. Therefore, patients with WD should be encouraged to adhere

to anticopper therapy and be closely monitored to prevent infections and other complications.

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