




Reductions in liver cirrhosis hospitalizations during the COVID-19 pandemic

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Received: 1 October 2020 / Accepted: 22 December 2020 / Published online: 9 January 2021
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Introduction

The coronavirus disease-2019 (COVID-19) pandemic has changed the world and placed a huge strain on health care systems worldwide. Many hospitals have intentionally reduced non-emergency procedures and hospitalizations for some reasons. Some studies [1–4] have confirmed that the number of hospital admissions decreased significantly during this period. For hospitalized patients with liver cirrhosis, there is still no relevant research in China. This study aimed to explore the impact of the COVID-19 pandemic on the hospitalization of patients with liver cirrhosis (Table 1).

Methods

We searched the hospitalizations records for liver cirrhosis in a tertiary hospital (The Second Xiangya Hospital). We examined the records of patients with liver cirrhosis who were hospitalized from January 21st, 2020 to March 31st, 2020 (from the first reported patient to the time of downgrading to third-level public health emergency in Hunan Province) and collected their clinical characteristics. We also collected the clinical characteristics of the patients with liver cirrhosis who were hospitalized from the same period in 2016–2019 for comparison.

Results

A total of 63 patients met the inclusion criteria in 2020, among whom 50 (79.4%) were male, and the average age was 49.6 years. In 2016–2019, 351 (ranging from 334 to 391) patients met the inclusion criteria, among whom 258 (73.5%) were male, and the average age was 52.7 years. The number of admissions decreased greatly during the COVID-19 pandemic.

Viral hepatitis was the main cause of liver cirrhosis (74.6% in 2020 and 66.7% in 2016–2019). Twenty two (34.9%) of 63 patients in 2020, and 28 (8.0%) of 351 in 2016–2019 ($p < 0.05$) were admitted through the emergency department. Twenty six (41.3%) of 63 patients and 61 (17.4%) of 351 patients were hospitalized for gastrointestinal bleeding in 2020 and 2016–2019 respectively, $p < 0.05$. Only 1 patient (1.6%) had hepatic encephalopathy in 2020, while 16 (4.6%) of 351 were recorded in 2016–2019, $p = 0.278$.

At admission, the severity of liver disease as assessed by CTP scores and grades did not differ between 2020 and 2016–2019 (CTP score: 7.7 in 2020 vs. 7.8 in 2016–2019, $p = 0.3705$; CTP grade: A:B:C 20:27:16 in 2020 vs. 117:151:83 in 2016–2019, $p = 0.947$). The average length-of-stay (LOS) was 14.0 days in 2020 and 15.3 days in 2016–2019, $p = 0.2263$.

Discussion

Recent studies [3, 5] showed different results. One study showed that the number of hospital admissions decreased significantly while another showed the opposite result. Our study showed that the hospitalizations decreased greatly compared to the previous years, while the severity and LOS did not vary. However, we found that the proportion of patients admitted due to gastrointestinal bleeding and through the emergency department increased significantly, which may be because hematemesis or black stools are fatal

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Table 1 Admissions of cirrhotic patients

Admissions of cirrhotic patients	2016–2019	2020	<i>p</i> value
Admission (range)	351 (334–391)	63	
Gender, <i>n</i> (%)			
Male	258 (73.5%)	50 (79.4%)	0.293
Female	93 (26.5%)	13 (20.6%)	
Age—years, average (range)	52.7 (8–90)	49.6 (18–79)	0.0250
Etiology of cirrhosis, <i>n</i> (%)			
Viral hepatitis	234 (66.7%)	47 (74.6%)	0.388
Alcohol	18 (5.1%)	1 (1.6%)	
Autoimmune hepatitis	7 (2.0%)	1 (1.6%)	
Hepatolenticular degeneration	6 (1.7%)	1 (1.6%)	
Two or more causes	32 (9.1%)	7 (11.1%)	
Unknown reason	32 (9.1%)	6 (9.5%)	
Others	22 (6.3%)	–	
Admitted through the emergency department (%)	28 (8.0%)	22 (34.9%)	< 0.05
Admitted due to gastrointestinal bleeding (%)	61 (17.4%)	26 (41.3%)	< 0.05
Complicated hepatic encephalopathy (%)	16 (4.6%)	1 (1.6%)	0.278
Length-of-stay (range)	15.3 (1–180)	14.0 (1–44)	0.2263
Child-Turcotte–Pugh score (range)	7.8 (5–14)	7.7 (5–12)	0.3705
Child-Turcotte–Pugh grade			
A	117 (33.3%)	20 (31.7%)	0.947
B	151 (43.0%)	27 (42.9%)	
C	83 (23.7%)	16 (25.4%)	

and more likely to alarm people, and some patients did not come to the hospital until their conditions worsened.

The number of beds did decrease to about 50% due to lack of staff (they were assigned to help control the COVID-19 crisis). However, once the patient asked for hospitalization, he/she would be admitted as there still had empty beds during the pandemic. Thus we think the dramatically decreased numbers may be mainly due to the decreased number of consultation of these patients, which may be because they were afraid of going to hospital.

In the current situation of the COVID-19 pandemic, further studies will be needed to investigate the decline in hospitalization rates for liver cirrhosis when national and social isolation measures are adopted. From a public health perspective, more studies are needed to determine whether this is related to adverse long-term results.

Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical approval The study was approved by the ethics committee of The Second Xiangya Hospital, and the need for informed consent was waived due to the retrospective study design.

References

- Hall ME, Vaduganathan M, Khan MS, Papadimitriou L, Long RC, Hernandez GA, et al. Reductions in heart failure hospitalizations during the COVID-19 pandemic. *J Cardiac Fail.* 2020;26(6):462–3.
- De Filippo O, D'Ascenzo F, Angelini F, Bocchino PP, Conrotto F, Saglietto A, et al. Reduced rate of hospital admissions for ACS during Covid-19 outbreak in Northern Italy. *N Engl J Med.* 2020;383(1):88–9.
- Mahmud N, Hubbard RA, Kaplan DE, Serper M. Declining cirrhosis hospitalizations in the wake of the COVID-19 pandemic: a national cohort study. *Gastroenterol.* 2020;159(3):1134–1136.e3.
- Tam CF, Cheung KS, Lam S, Wong A, Yung A, Sze M, et al. Impact of Coronavirus Disease 2019 (COVID-19) outbreak on ST-segment-elevation myocardial infarction care in Hong Kong, China. *Circ Cardiovasc Qual Outcomes.* 2020;13(4):e006631.
- Gaspar R, Liberal R, Branco CC, Macedo G. Trends in cirrhosis hospitalizations during the COVID-19 pandemic. *Dig. liver dis. : J Ital. Soc. Gastroenterol. Ital. Assoc. Stud. Liver.* 2020;52(9):942–943.

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