

## **Survival and Outcomes for co-infection of chronic hepatitis C with and without cirrhosis and COVID-19; A multicenter retrospective study**

**BACKGROUND** :Chronic liver disease, particularly cirrhosis, is associated with worse outcomes in patients infected with coronavirus disease 2019 (COVID-19).

**AIM** :To assess outcomes of COVID-19 infection among patients with pre-existing hepatitis C with or without liver cirrhosis.

**METHODS** :This multicenter, retrospective cohort study included all cases of confirmed co-infection Of severe acute respiratory syndrome coronavirus 2 And chronic hepatitis C with or without liver cirrhosis who were admitted to six hospitals (Al-Sahel Hospital, Al-Matareya Hospital, Al-Ahrar Hospital, Ahmed Maher Teaching Hospital, Al-Gomhoreya Hospital, and the National Hepatology and Tropical Medicine Research Institute) affiliated with the General Organization for Teaching Hospitals and Institutes in Egypt. Patients were recruited from May 1, 2020, to July 31, 2020. Demographic, laboratory, imaging features, and outcomes were collected. Multivariate regression analysis was performed to detect factors affecting mortality.

**RESULTS** :This retrospective cohort study included 125 patients with chronic hepatitis C and COVID-19 co-infection, of which 64 (51.20%) had liver cirrhosis and 40 (32.00%) died. Fever, cough, dyspnea, and fatigue were the most frequent symptoms in patients with liver cirrhosis. Cough, sore throat, fatigue, myalgia, and diarrhea were significantly more common in patients with liver cirrhosis than in non-cirrhotic patients. There was no difference between patients with and without cirrhosis regarding comorbidities. Fifteen patients (23.40%) with liver cirrhosis presented with hepatic encephalopathy. Patients with liver cirrhosis were more likely than non-cirrhotic patients to have combined ground-glass opacities and consolidations in CT chest scans: 28 (43.75%) vs 4 (6.55%), respectively ( $P$  value  $< 0.001$ ). These patients also were more likely to have severe COVID-19 infection, compared to patients without liver cirrhosis: 29 (45.31%) vs 11 (18.04%), respectively ( $P$  value  $< 0.003$ ). Mortality was higher in patients with liver cirrhosis, compared to those with no cirrhosis: 33 (51.56%) vs 9 (14.75%), respectively ( $P$  value  $< 0.001$ ). All patients in Child-Pugh class A recovered and were discharged. Cirrhotic mortality occurred among decompensated patients only. A multivariate regression analysis revealed the following independent factors affecting mortality: Male gender (OR 7.17, 95%CI: 2.19–23.51;  $P$  value =

0.001), diabetes mellitus (OR 4.03, 95%CI: 1.49–10.91;  $P$  value = 0.006), and liver cirrhosis (OR 1.103, 95%CI: 1.037–1.282;  $P$  value  $< 0.0001$ ). We found no differences in liver function, COVID-19 disease severity, or outcomes between patients who previously received direct-acting antiviral therapy (and achieved sustained virological response) and patients who did not receive this therapy.

**CONCLUSION** :Patients with liver cirrhosis are susceptible to higher severity and mortality if infected with COVID-19. Male gender, diabetes mellitus, and liver cirrhosis are independent factors associated with increased mortality risk.

تاريخ النشر: 14 نوفمبر 2021