

ORIGINAL ARTICLE

Comparison of Adverse Outcomes in Cirrhotic and Non-Cirrhotic Patients with Covid-19 Disease

JAHANGIR ANJUM¹, TALAL SAFDAR², MUHAMMAD IMRAN³, MUAZZAM FUAAD⁴, WAHEEDIQBAL⁵, TARIK ALAM SOLANGI⁶

¹Assistant Professor of Medicine, Mohtrama Benazir Bhutto Shaheed Medical College / Divisional Headquarters Teaching Hospital Mirpur Azad Kashmir

²Senior Registrar (Medicine), Fauji Foundation Hospital Rawalpindi

³Assistant Professor General Medicine, Mohiuddin Teaching Hospital, Mirpur AJK

⁴Assistant Professor Medicine, Medical Department Rai Medical College, Sargodha

⁵Associate Professor Department of Medicine, Divisional Headquarters Teaching Hospital Mir Pur/ Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur

⁶Research Fellow in the World Health Organization, Egypt Cairo

Corresponding Author: Dr. Jahangir Anjum, Email Address: drjahangiranjum@gmail.com, Cell No: +923215522553

ABSTRACT

Objective: The aim of this study is to determine the comparison of adverse outcomes in cirrhotic and non-cirrhotic patients presented with coronavirus disease.

Study Design:

Place and Duration: The department of Medicine of Divisional Headquarters Teaching Hospital Mirpur Azad Kashmir and Mohiuddin Teaching Hospital, Mirpur AJK for six months during the period from October 2020 to March 2021.

Methodology: Total 80 covid-19 patients of both genders with or without chronic liver disease were enrolled in this study. Patients were aged between 20-55 years. Patients were divided in to two groups. Group I (with cirrhosis 40 patients) and group II (without cirrhosis 40 patients). Outcomes in term of mortality between both groups were examined. All the data was analyzed by SPSS 26.0 version.

Results: There were 24 (60%) males and 16 (40%) were females with mean age 44.19 ± 7.65 years in group I while in group II 27 (67.5%) and 13 (32.5%) patients were males and females with mean age 43.62 ± 5.34 years. We found that mortality rate among patients of group I (cirrhotic) had high mortality rate 13 (32.5%) as compared to patients without cirrhosis 5 (12.5%) in group II with p-value 0.0003.

Conclusion: We concluded in this that frequency of adverse outcomes was significantly high among cirrhotic patients with coronavirus disease as compared to non-cirrhotic patients.

Keywords: Corvid-19, Mortality, Chronic Liver Disease

INTRODUCTION

There is a substantial death rate associated with severe acute respiratory syndrome coronavirus 2 infection causing COVID-19.[1] COVID-19 is thought to be associated with high-risk co-morbid conditions such as cirrhosis because of its innate immunological dysfunction and altered gut-liver axis.[2] Registry data on COVID-19 patients with cirrhosis show a poor prognosis with a mortality rate of approximately 40%[3,4], with pulmonary and liver-related causes accounting for the majority of deaths. Those with a history of liver transplant were at an elevated risk of death due to the severity of cirrhosis, according to registry data. [5]

As a result, the increased risk of severe outcomes in cirrhosis cannot be assumed because there is no common denominator between individuals with cirrhosis but without COVID-19 and those with COVID-19 and no advanced liver disease.[6] Cirrhosis is related with poor outcomes, according to a population-based claims data analysis based on billing data. Because of this, the influence of COVID-19 on in-hospital outcomes for patients with cirrhosis in terms of mortality and the development of ACLF remains unknown. COVID-19 and cirrhosis comparative studies are rare. [7 8]

COVID-19 patients commonly develop varying degrees of liver injury in addition to respiratory symptoms such as fever, cough, and dyspnea[9].

[10] Covid-19 individuals with preexisting liver disorders, notably liver cirrhosis, have a greater rate of liver biochemical abnormalities, liver damage and even hepatic decompensation events than those without preexisting liver disease. [11] It is believed that liver cirrhosis, due to its inherent immunological dysfunction, is a high-risk concomitant disease for severe COVID-19. [12] Another risk factor for COVID-19 individuals with a bad prognosis is decompensated liver cirrhosis and acute-on-chronic liver failure [13,14]

SARS-CoV-2 infection has a wide range of probable manifestations and outcomes, and genetic variations around the world could conceivably influence the severity of the infection. COVID-19 individuals with underlying hepatic disorders, however, remain a mystery. In this study, we looked at the relationship between cirrhotic illness and mortality rates among patients.

MATERIALS AND METHODS

This retrospective/observational study was conducted at the department of Medicine of Divisional Headquarters Teaching Hospital Mirpur Azad Kashmir and Mohiuddin Teaching Hospital, Mirpur AJK for six months during the period from October 2020 to March 2021. The study consisted of 80 patients. Baseline detailed demographics of enrolled cases were recorded after taking written consent.

Patients with ages <20 years and those did not give any written consent were excluded from this study.

Covid-19 patients of both genders with or without chronic liver disease were enrolled in this study. Patients were aged between 20-55 years. Patients were divided into two groups. Group I (with cirrhosis 40 patients) and group II (without cirrhosis 40 patients). Outcomes in terms of mortality between both groups were examined. All the data was analyzed by SPSS 26.0 version.

RESULTS

There were 24 (60%) males and 16 (40%) were females with mean age 44.19 ± 7.65 years in group I while in group II 27 (67.5%) and 13 (32.5%) patients were males and females with mean age 43.62 ± 5.34 years. (Table 1)

Table 1: Baseline detailed demographics of enrolled cases

Variables	Group I	Group II	Total
Gender			
Male	24 (60%)	27 (67.5%)	51 (63.8%)
Female	16 (40%)	13 (32.5%)	29 (36.2%)
Total	40	40	80
Mean age	44.19 ± 7.65	43.62 ± 5.34	

Hospital stay was greater among the cirrhotic patients in group I 42.03 ± 7.16 days as compared to the patients without cirrhosis in group II 15.45 ± 7.24 days. We found that mortality rate among patients of group I (cirrhotic) had high mortality rate 13 (32.5%) as compared to patients without cirrhosis 5 (12.5%) in group II with p-value 0.0003. (table 2)

Table 2: Association of adverse outcomes among the patients of both groups

Adverse outcomes	Group I	Group II
Hospital stay (days)	42.03 ± 7.16	15.45 ± 7.24
Mortality		
Yes	13 (32.5%)	5 (12.5%)
No	27 (67.5%)	35 (87.5%)

DISCUSSION

This present study was conducted to determine the comparison of adverse outcomes in terms among cirrhotic and non-cirrhotic patients presented with COVID-19. In the current study 80 patients of both genders were presented, in which majority of the patients 63.8% were males. Patients were aged between 20-55 years of age. We arranged to divide patients into two equal groups I and II, group I had patients of cirrhosis and group II had patients without cirrhosis. Mean age of the patients in group I was 44.19 ± 7.65 years while in group II mean age was 43.62 ± 5.34 years. Our findings were comparable to the previous studies. [15,16]

In our study mortality rate among patients of group I (cirrhotic) had a high mortality rate 13 (32.5%) as compared to patients without cirrhosis 5 (12.5%) in group II with p-value 0.0003. Noncirrhotic chronic liver disease (CLD) patients may not have a higher mortality, but patients with nonalcoholic fatty liver disease (NAFLD)/nonalcoholic steatohepatitis (NASH) may have more disease severity/mortality due to frequent association with diabetes, obesity, and metabolic syndrome (MetS). [17,18] COVID-19 patients had elevated liver enzymes in 10.5% to 53% of cases, according to a systematic analysis

by Ghoshal et al. According to various research, serum albumin levels have fallen. These anomalies were more common in COVID-19-associated patients. [19] There are various indicators that provide predictive information concerning severe disease and/or mortality, according to Izcovich and colleagues. Severe illness is accompanied with high blood aspartate aminotransferase (AST), a reduction in albumin, and high blood bilirubin. [20]

In our study hospital stay was greater among the cirrhotic patients in group I 42.03 ± 7.16 days as compared to the patients without cirrhosis in group II 15.45 ± 7.24 days. These were comparable to some previous studies in which hospital stay among non-cirrhotic patients were significantly lower as compared to cirrhotic cases. [21,22] Cirrhosis of the liver should be considered a comorbidity with a high risk. Patients with COVID-19 and liver cirrhosis die at a rate of 33%, according to a global registry. [23] Cirrhosis and COVID-19 patients have a greater mortality than COVID-19 patients alone. [24]

A study by Iavarone et al, 30-day mortality rate for patients with cirrhosis and severe acute COVID-19 was 34 percent (17 out of 50), which was considerably greater than the mortality rate for individuals with cirrhosis who also had bacterial infections (17 percent) and those without cirrhosis (17 percent) (18 percent). Lethality was predicted by the severity of lung and liver disorders. [25] In patients with cirrhosis, the COVID-19 is related with an increased risk of more severe disease manifestation and mortality. Patients with decompensated cirrhosis have a higher mortality risk.

CONCLUSION

We concluded in this that frequency of adverse outcomes was significantly high among cirrhotic patients with coronavirus disease as compared to non-cirrhotic patients.

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