

COVID-19 Impact on Alcoholic Cirrhosis and Nonalcoholic Steatohepatitis-Related (NASH) Cirrhosis on Hospital Admissions

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Introduction

- COVID-19 led to the postponement of nonessential procedures and appointments, leaving many patients without appropriate medical follow-up.
- Patients with alcoholic and nonalcoholic steatohepatitis (NASH)-related cirrhosis often have multiple comorbidities,^{1,2,3} and managing these comorbidities is an important step in minimizing disease progression.
- **Purpose:**
 - Compare pre-COVID and post-COVID number of admissions, mean length of stay, complications, and mortality in patients with alcoholic and NASH cirrhosis

Methods

- We used the Vizient clinical database to collect data from 809 United States hospitals from Mar 2019- Mar 2021.
 - Pre-pandemic period: Mar 2019 - Feb 2020
 - Post-pandemic period: Mar 2020 - Mar 2021
 - Total number of hospital admissions, the length of stay in days (LOS), and mortality were compared between the pre-pandemic and post-pandemic period.
- Data was compared using Stata Statistical Software Package.

Table 1. Pre-COVID and Post-COVID Comparison of Hospital Outcomes

	Alcoholic Cirrhosis Pre-COVID	Alcoholic Cirrhosis Post-COVID	NASH Cirrhosis Pre-COVID	NASH Cirrhosis Post-COVID
Admissions (n)	118,630	121,613	51,033	51,117
Mean LOS (days)	7.41	7.70	7.27	7.67
Mean ICU LOS (days)	4.86	5.27	4.98	5.78
Cases with ≥ 1 complication	6,414	7,185	2,848	2,951
Deaths (n)	8,164	9,989	2,534	3,077
Mortality Index	1.01	1.05	0.91	0.95

LOS (length of stay); Pre-COVID: Mar 2019 - Feb 2020; Post-COVID Mar 2020 - Mar 2021

Results

- The number of admissions in patients with alcoholic cirrhosis and NASH cirrhosis increased 2.5% and 0.1%, respectively during the first year of the COVID pandemic.
- Mean LOS in patients with alcoholic cirrhosis increased from 7.41 days to 7.70 days.
- The number of deaths in patients with alcoholic cirrhosis and NASH cirrhosis increased by 22.4% and 21.4%, respectively during the first year of the COVID pandemic.
- There was a significant post-pandemic increase in number of admissions, length of stay, and deaths in patients with alcoholic cirrhosis and NASH cirrhosis (**P<0.01**).

Discussion

- Patients with alcoholic cirrhosis and NASH cirrhosis had a significantly increased number of admissions, length of stay, and deaths post-pandemic compared to pre-pandemic.
- The increase in hospital outcomes could be driven by increased cirrhosis disease progression or increased COVID burden in these populations.
- Patients with alcoholic cirrhosis and NASH cirrhosis will need aggressive clinical follow-up to prevent further progression of their disease.
- Further studies are needed to investigate the incidence of COVID-19 in these populations.

References

1. Z. M. Younossi, Golabi P., de Avila L., Paik J. M., Srishord M., Fukui N., Qiu Y., Burns L., Afendy A., Nader F. The global epidemiology of NAFLD and NASH in patients with type 2 diabetes: A systematic review and meta-analysis. *J Hepatol.* 2019;71(4):793-801.
2. P. Golabi, Paik J. M., Eberly K., de Avila L., Alqahtani S. A., Younossi Z. M. Causes of death in patients with Non-alcoholic Fatty Liver Disease (NAFLD), alcoholic liver disease and chronic viral Hepatitis B and C. *Ann Hepatol.* 2022;27(1):100556.
3. P. Paschos, Paletas K. Non alcoholic fatty liver disease and metabolic syndrome. *Hippokratia.* 2009;13(1):9-19