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Clinical Outcomes for Patients with NAFLD and Acute Hepatitis: An Analysis of the National Inpatient Sample

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Clinical Outcomes for Patients with NAFLD and Acute Hepatitis: An Analysis of the National Inpatient Sample

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Background

- Non-alcoholic fatty liver disease (NAFLD) is the most common form of chronic liver disease in the United States affecting approximately 1 in 4 Americans.¹
- NAFLD has been found to play a significant role in cardiovascular disease risk through several mechanisms including dyslipidemia, insulin resistance, coagulability, and inflammation.²
- Acute-on-chronic liver disease continues to contribute to worse health outcomes namely in the East through hepatitis B viral infection and alcohol intake.³
- We sought to examine the national inpatient sample database (NIS) to describe in-hospital outcomes such as inpatient mortality, and cardiovascular adverse events among patients with NAFLD and concomitant acute hepatitis.

Methods

- This case-control study investigated the relationship between NAFLD and acute hepatitis infection using data extracted from the NIS for the years 2019 and 2020.
- The NIS was searched for hospitalizations of adult patients with acute hepatitis with and without a concomitant diagnosis of NAFLD.
- Using multivariate logistics to adjust for confounders, the primary outcome was inpatient mortality, and the secondary outcomes were hospital length of stay (LOS), and total hospital charges.

Results

- This study included 208,145 patients with acute hepatitis, of which 12,406 patients had NAFLD.
- The study found a statistically significant higher inpatient mortality (OR:1.041, 95% CI:1.1.036-1.046, $p < 0.001$) for those with both acute hepatitis and NAFLD.
- While mean LOS as well as hospital charges were less for patients with acute hepatitis and NAFLD (6.1 days vs. 6.0 days, $p < 0.001$; \$68,745 vs. \$67,460, $p < 0.001$).
- Secondary analysis found that patients with acute hepatitis and NAFLD had statistically significantly higher odds of high output heart failure (HOHF), shock, arrhythmias and acute kidney injury (AKI) compared to those with acute hepatitis alone (Table 1).

Complication	Odds Ratio	95% Confidence Interval	P-value
AKI	1.063	1.060-1.066	$p < 0.001$
HOHF	1.042	0.962-1.128	$p < 0.001$
Shock	1.063	1.056-1.071	$p < 0.001$
Arrhythmias	1.059	1.055-1.063	$p < 0.001$
Female Sex	1.062	1.060-1.064	$p < 0.001$

Table 1. Complications of acute hepatitis and NAFLD compared to acute hepatitis alone.

Conclusion

- In this nationally representative population-based case-control study, NAFLD with acute hepatitis was associated with higher inpatient mortality and worse outcomes compared to those with acute hepatitis alone.
- These results are consistent with the current literature supporting that various causes of acute hepatitis (i.e., alcohol, viral infections, autoimmune disease, medications, etc.) contribute to the severity of liver disease and additionally, negative adverse outcomes.⁴

References

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