Is Non-Alcoholic Fatty Liver Disease a Risk Factor for Ascending Cholangitis? A National Retrospective Cohort Study

Pratik Patel MD[1], Hassam Ali MD[2], Rahul Pamarthy MD[2], Shiva Poola MD[2], Karina Fatakhova MD[1], Sanjaya K. Satapathy MD[3]

1. Mather Hospital Northwell Health, 2. East Carolina University, 3. North Shore University Hospital Northwell Health

INTRODUCTION

- Non-alcoholic fatty liver disease (NAFLD) represents a spectrum of liver disease that ranges from simple fat deposition in the liver, to fibrosis and even decompensated cirrhosis.
- The association between NAFLD and ascending cholangitis (AC) independent of choledocholithiasis has not yet been evaluated.
- This study investigates the association, risk factors and mortality of AC in patients with and without NAFLD.

METHODS

- Retrospective study using the National Inpatient Sample (NIS) database analyzing adult patients (≥18 years of age) with a diagnosis of AC and NAFLD from Jan 1, 2016, to Dec 31, 2019.
- Patients were split into two cohorts based on the presence or absence of NAFLD.
- Exclusion criteria included etiologies of liver disease other than NAFLD in both cohorts to accurately compare independent effects of NAFLD on AC outcomes.

VARIABLE	Odds ratio	95% Confidence Interval	p-value
Acute cholecystitis	0.95	0.51-1.76	P = 0.8
Portal vein thrombosis	4.17	2.55-6.81	P < 0.001
Acute biliary pancreatitis	0.59	0.36-0.99	P = 0.04
Acute renal failure	1.83	1.45-2.31	P < 0.001
Sepsis	1.14	0.86-1.51	P = 0.3
Vasopressor use	2.11	1.18-3.75	P = 0.01
Mechanical ventilation	2.14	1.38-3.31	P = 0.001
ERCP	0.48	0.38-0.60	P < 0.001
Percutaneous Cholecystostomy Tube	0.44	0.20-0.99	P = 0.04

Table 1. Association of acute complications in patients with AC with NAFLD compared to those without NAFLD

RESULTS

- A total of 162,110 cases of AC were included in our study. Of these, 0.14% of cases had NAFLD as a comorbid condition after the patient selection process.
- There was an increased association of NAFLD with AC compared to patients without NAFLD, aOR 2.81 (95% CI [2.51-3.14], P < 0.001).
- There was significantly higher mortality among the NAFLD cohort (5% vs. 4%, P = 0.03).
- Table 1 provides a comparison of the acute complications between the NAFLD and non-NAFLD cohorts

DISCUSSION

- Patients with NAFLD were at a higher risk of developing AC compared to patients without NAFLD.
- Patients with NAFLD had increased length of stay, mean inpatient cost, medical co-morbidities and acute complications.
- Reversal of steatosis and fibrosis through diet, exercise, new pharmacotherapy and bariatric surgery could help prevent future complications such as AC.