

BACKGROUND AND HYPOTHESIS

- Cirrhosis has been identified as a risk factor for the development of candidemia, which is associated with high mortality rates.
- Although the current literature describes poor outcomes in cirrhotic patients with invasive candidiasis, factors contributing to worse outcomes are not well known.
- We aim to better understand the factors contributing to worse outcomes in cirrhotic patients with candidemia.

METHODS

- Data were extracted from the National Inpatient Sample (NIS) database from 2016-2019.
- Using the ICD-10-CM codes, patients diagnosed with candidemia were identified.
- Baseline demographic data, comorbidities, in-hospital mortality, hospital charges, and hospital length of stay (LOS) were extracted and compared based on the presence or absence of a concurrent diagnosis of cirrhosis.
- Statistical analyses were done using t-test and Chi-squared analysis. A multivariate analysis for the mortality odds ratio (OR) was calculated to adjust for possible confounders.

RESULTS

- A total of 49,130 patients diagnosed with candidemia, and 2,650 of them had a concurrent diagnosis of cirrhosis.
- There was no difference in the cost of hospitalization (\$ 319,472 vs. \$ 315,338; $p = 0.86$) or the LOS (21.6 vs 21.7 days; $p = 0.91$).
- Cirrhotic patients had a higher in-hospital mortality than those without cirrhosis (OR 2.43, CI 1.94-3.02; $p = 0.01$).
- Moreover, age >65, non-white race, alcoholism, and congestive heart failure were independently associated with a higher in-hospital mortality (Table 1).
- In patients with cirrhosis and candidemia, the presence of hepatic failure (OR 2.4, CI 1.63-3.53; $p = 0.00$) and ascites (OR 1.64, CI 1.11-2.45; $p = 0.01$) were associated with increased mortality.
- Other comorbidities such as hepatorenal syndrome, hepatopulmonary syndrome, spontaneous bacterial peritonitis, hepatocellular carcinoma, and esophageal varices did not have an association.

TABLE 1 UNIVARIATE AND MULTIVARIATE ANALYSIS OF POTENTIAL FACTORS AFFECTING IN-HOSPITAL MORTALITY IN PATIENTS WITH CHOLANGITIS UNDERWENT ERCP

Variable	adjusted OR (CI 95%)	P-value
Cirrhosis	2.43 (1.94-3.02)	< 0.01
Age >= 65	1.47 (1.3-1.65)	< 0.01
Female	0.9 (0.81-1)	0.06
Non-White	1.4 (1.26-1.57)	0.02
Alcoholism	1.55 (1.22-1.96)	< 0.01
Diabetes mellitus	0.65 (0.58-0.73)	< 0.01
Hypertension	0.78 (0.69-0.87)	< 0.01
Congestive heart failure	1.71 (1.53-1.92)	< 0.01
Obesity (BMI > 30)	0.84 (0.72-0.99)	0.04

CONCLUSIONS AND RECOMMENDATIONS

- A co-diagnosis of cirrhosis during hospitalization for candidemia may indicate a poor prognosis, especially in those with associated hepatic failure and ascites, and thus a careful clinical judgement should be practiced given the nature of cirrhosis may complicate the management of infection.
- Modifiable risk factors such as alcoholism and underlying socioeconomic factors may play key roles in disease outcomes and should be addressed to avoid excessively poor healthcare outcomes.