

IN-HOSPITAL CHARACTERISTICS AND HEALTHCARE UTILIZATION OF NASH-RELATED SBP VS NON-NASH-RELATED SBP : A STUDY BASED ON NATIONWIDE INPATIENT DATABASE

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Introduction

- Spontaneous Bacterial Peritonitis (SBP) incidence in hospitalized patients with chronic liver disease (CLD) and ascites varies from 10%-30%.
- It is associated with an estimated in-hospital mortality rate of 20%.
- There is a paucity of data on SBP outcomes based on the etiology of CLD. Our aim is to compare in-hospital patient outcomes.
- We are assessing healthcare utilization amongst patients with non-alcoholic steatohepatitis (NASH) related SBP and non-NASH related SBP.

Methods and materials

- We utilized the Nationwide Inpatient Sample (NIS) database from 2018 and 2019.
- Adult hospitalizations amongst hepatitis patients due to SBP were identified by previously validated ICD-10-CM codes.
- SBP patients were divided into two groups: NASH and non-NASH groups.
- The non-Nash group includes other common etiologies of cirrhosis like Hepatitis B, C, and Alcohol-related liver diseases.
- Univariate and multivariate logistic regression for categorical variables and linear regression for continuous variables were carried out to identify independent associations at $p < 0.05$.
- Statistical Analysis was performed using R studio.

Demographics	NASH SBP N=1170	Non-NASH SBP N=835	p-value
Age in years at admission	56 (46, 65)	57 (52, 63)	0.11
Gender			
MALE	935 (53%)	5,835 (70%)	<0.001
FEMALE	835 (47%)	2,560 (30%)	
HOSPITAL BEDSIZE			0.3
Small	255 (14%)	1,430 (17%)	
Medium	435 (25%)	2,200 (26%)	
Large	1,080 (61%)	4,765 (57%)	
Hospital location Teaching			0.6
Rural	115 (6.5%)	560 (6.7%)	
Urban, NonTeaching	285 (16%)	1,165 (14%)	
Urban, Teaching	1,370 (77%)	6,670 (79%)	
HOSP REGION			0.2
Northeast	230 (13%)	1,305 (16%)	
Midwest	365 (22%)	1,450 (18%)	
South	615 (35%)	3,090 (37%)	
West	530 (30%)	2,510 (30%)	
PAY			<0.001
Medicare	625 (36%)	2,855 (34%)	
Medicaid	440 (25%)	3,240 (39%)	
Private	475 (27%)	1,400 (17%)	
Self Pay	150 (8.5%)	510 (6.1%)	
No charge	5 (0.3%)	70 (0.8%)	
Other	65 (3.7%)	300 (3.6%)	
RACE			<0.001
White	1,190 (99%)	4,670 (57%)	
African American	155 (9.0%)	1,160 (14%)	
Hispanic	240 (14%)	1,535 (18%)	
Asian/Pacific Islander	35 (2.0%)	420 (5.1%)	
Native American	35 (2.0%)	170 (2.1%)	
Other	65 (3.8%)	275 (3.3%)	
YEAR			0.2
2018	865 (49%)	4,440 (53%)	
2019	905 (51%)	3,965 (47%)	
Median household income national quartile for patient ZIP Code			<0.001
\$1-24999	450 (26%)	2,585 (32%)	
\$25000-34999	520 (30%)	2,240 (28%)	
\$35000-44999	360 (21%)	1,850 (23%)	
\$45000+	410 (24%)	1,055 (13%)	
Hepatitis B	0 (0%)	1,095 (13%)	<0.001
Hepatitis C	0 (0%)	5,730 (68%)	<0.001
Alcoholic Liver Disease	0 (0%)	1,940 (23%)	<0.001
Liver Disease	1,770 (100%)	8,395 (100%)	
HTN	865 (51%)	3,615 (43%)	0.01
HLI	460 (26%)	795 (9.5%)	<0.001
DM	340 (19%)	980 (12%)	<0.001
CAD	30 (1.7%)	40 (0.5%)	0.012
Age Group			<0.001
18-27	30 (1.7%)	50 (0.6%)	
28-37	205 (12%)	450 (5.4%)	
38-47	270 (15%)	945 (11%)	
48-57	470 (27%)	2,750 (33%)	
58-67	455 (26%)	3,195 (38%)	
68-77	240 (14%)	855 (10%)	
78-87	100 (5.6%)	125 (1.5%)	
88 and above	0 (0%)	15 (0.2%)	
Outcomes			
DIED	200 (11%)	1,285 (15%)	0.05
Total charges (cleaned)	59,325 (36,229, 103,783)	60,908 (31,981, 117,212)	0.8
Length of stay (cleaned)	7 (4, 11)	6 (3, 10)	0.008
Table 2			
Outcomes (Multivariate Analysis)	aOR	Range	
Inpatient Mortality	1.35	0.91-2.01	
Total Charges	1		
Length Of Stay	1.01	1.01-1.02	

Table 1: Baseline demographics of inpatient SBP patients with NASH and Non-NASH related liver disease.
 Table 2: Outcome of inpatient SBP patients with NASH and Non-NASH related liver disease.

Results

- A total of 2033 patients met the inclusion criteria.
- 53% in the NASH-related SBP patient group and 70% in the non-NASH-related SBP group were men, respectively (Table 1).
- Hypertension (51% vs 43%), hyperlipidemia (26% vs 9.5%), type II diabetes mellitus (19% vs 12%) and coronary artery disease (1.7% vs 0.5%) were significantly higher in patients with NASH vs non-NASH related SBP, respectively.
- In the non-NASH group, hepatitis C was the etiology most commonly associated with SBP (68%).
- On univariate analysis, patients with SBP in the NASH group had a lower crude mortality rate (11% vs 15%) and increased length of stay (7 days vs 6 days) as compared to non-NASH related SBP.
- On multivariate analysis, there was no statistically significant difference amongst outcomes parameters including crude mortality rate, total charges during hospitalization, and length of stay (Table 2).

Discussion

- Patients with NASH-related SBP had more comorbidities representing an increased prevalence of metabolic syndrome in these patients.
- Despite this difference in disease burden, there was no significant difference in SBP-related outcomes, and outcomes were still poor in all etiology groups.
- Thus, SBP needs to be treated aggressively regardless of the etiology of the underlying liver disease.

References

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