The Impact of Malnutrition on the Outcomes of Autoimmune Hepatitis

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Background

- Malnutrition is commonly found among hospitalized patients, and it is generally known to be associated with poor clinical outcomes.
- However, there is a lack of data on how outcomes of autoimmune hepatitis may differ in patients with malnutrition.
- Thus, we aim to assess the outcomes of autoimmune hepatitis in patients with malnutrition.

Methods

- Adult patients hospitalized with autoimmune hepatitis from the National Inpatient Sample, Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality 2010-2014 were selected.
- Diagnoses were identified by using ICD-9 CM codes.
- Patient demographics and outcomes of autoimmune hepatitis were compared between the groups with and without malnutrition.
- The outcomes of interest were inpatient mortality, length of stay, total hospital charge, cirrhosis, portal hypertension, hepatic encephalopathy, ascites, hepatorenal syndrome, varices/variceal bleeding, spontaneous bacterial peritonitis, and sepsis.
- Chi-squared tests and independent t-tests were used to compare proportions and means, respectively. Multivariate logistic regression analysis was performed to determine if malnutrition is an independent predictor of the outcomes, adjusting for age, sex, and race.

Results

Patient Demographics and Characteristics			
	Malnutrition	Without malnutrition	P-value
N = 17,963	N = 1,936	N = 16,027	
Patient age, mean (SD)	60.3 (17.5)	56.7 (17.7)	**<0.05**
Sex, N (%)			**<0.05**
Female	1515 (78.3)	12910 (80.6)	
Male	421 (21.7)	3115 (19.4)	
Race, N (%)			**<0.05**
White	1119 (57.8)	9604 (59.9)	
Black	268 (13.8)	2332 (14.6)	
Hispanic	256 (13.2)	2100 (13.1)	
Asian or Pacific Islander	54 (2.8)	278 (1.7)	
Native American	16 (0.8)	125 (0.8)	
Other	75 (3.9)	461 (2.9)	
Length of stay, in days (SD)	9.7 (12.0)	5.3 (6.3)	**<0.05**
Total hospital Charges, in $ (SD)	95282.5 (172793.1)	47238.9 (82652.1)	**<0.05**
Inpatient Mortality, N (%)	165 (8.5)	523 (3.3)	**<0.05**

Multivariate Regression Analysis of Outcomes			
Outcomes	Adjusted Odds Ratio*	Confidence Interval	P-value
Cirrhosis	1.49	1.34-1.64	**<0.05**
Portal hypertension	1.79	1.59-2.02	**<0.05**
Hepatic encephalopathy	1.91	1.69-2.16	**<0.05**
Ascites	2.36	2.11-2.63	**<0.05**
Hepatorenal syndrome	3.67	2.87-4.69	**<0.05**
Varices and variceal bleeding	1.4	1.22-1.61	**<0.05**
Spontaneous bacterial peritonitis	1.49	1.10-2.02	**<0.05**
Sepsis	2.37	2.06-2.73	**<0.05**
Inpatient mortality	2.52	2.08-3.05	**<0.05**

*Adjusted for age, sex, and race

- Patients with malnutrition had longer length of stay (9.7 days vs. 5.3 days, p < 0.05) and higher total hospital charge ($95,283 vs. $47,239, p < 0.05).
- After adjusting for age, sex, and race, malnutrition was an independent risk factor for cirrhosis (adjusted odds ratio (aOR) 1.49, 95% confidence interval (CI): 1.34-1.64, p < 0.05), portal hypertension (aOR 1.79, 95% CI: 1.59-2.02, p < 0.05), hepatic encephalopathy (aOR 1.91, 95% CI: 1.69-2.16, p < 0.05), ascites (aOR 2.36, 95% CI: 2.11-2.63, p < 0.05), hepatorenal syndrome (aOR 3.67, 95% CI: 2.87-4.69, p < 0.05), varices/variceal bleeding (aOR 1.40, 95% CI: 1.22-1.61, p < 0.05), spontaneous bacterial peritonitis (aOR 1.49, 95% CI: 1.10-2.02, p < 0.05), sepsis (aOR 2.37, 95% CI: 2.06-2.73, p < 0.05), and inpatient mortality (aOR 2.52, 95% CI: 2.08-3.05, p < 0.05).

Conclusion

- Our study indicates that autoimmune hepatitis patients with malnutrition have **worse outcomes**, including increased odds of inpatient mortality, cirrhosis, portal hypertension, hepatic encephalopathy, ascites, hepatorenal syndrome, varices/variceal bleeding, spontaneous bacterial peritonitis, and sepsis.
- The results suggest that prompt recognition of nutritional status is warranted to improve the outcomes of autoimmune hepatitis.

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