THE EFFECT OF HOSPITAL BED SIZE ON THE RISK OF DEVELOPING ACUTE ON CHRONIC LIVER FAILURE IN PATIENTS WITH DECOMPENSATED CIRRHOSIS

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Introduction

- The healthcare cost and utilization project has classified hospitals as small, medium, and large bed size.
- This division is based on the hospital's region, location, and teaching status.
- To our knowledge, there have been no studies assessing the impact of bed size on the development of acute on chronic liver failure (ACLF) in patients with decompensated cirrhosis.
- We hypothesize that large bed size hospitals care for a sicker population and admitted patients have a higher incidence and risk of developing ACLF.

Methods

- We queried the National Inpatient Sample (NIS) database using ICD-10 codes.
- ACLF was defined as the presence of renal failure or hepatic encephalopathy and one other organ dysfunction or two non-renal organ failures in patients with cirrhosis and a decompensating event.
- Decompensating events were defined as presence of ascites, varices, hepatic encephalopathy, or infection.
- The relationship between hospital bed size and ACLF in patients with decompensated cirrhosis was examined using multivariate analysis.

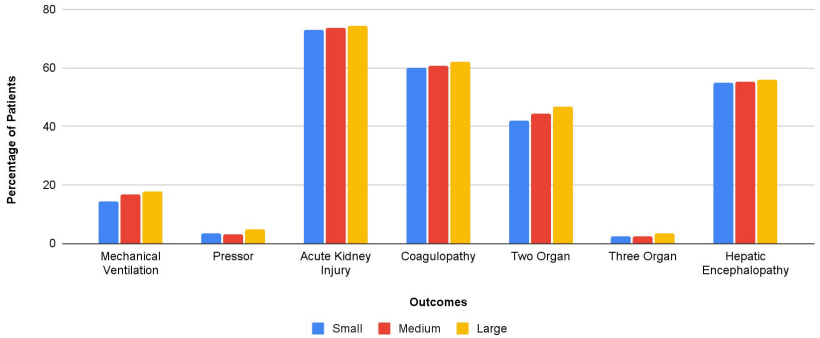

Figure 1- Components of ACLF and outcomes of ACLF, stratified by Bed Size

	Adjusted Odds Ratio	P-value	95 % CI
ACLF			
Small bed size	Reference	Reference	Reference
Medium bed size	1.09	<0.001	1.07-1.12
Large bed size	1.20	<0.001	1.17-1.23
Two Organ Failure			
Small bed size	Reference	Reference	Reference
Medium bed size	1.13	<0.001	1.09-1.16
Large bed size	1.28	<0.001	1.24-1.32
Three Organ Failure			
Small bed size	Reference	Reference	Reference
Medium bed size	1.10	0.194	0.95-1.28
Large bed size	1.73	<0.001	1.51-1.98

Table 1: Adjusted odds ratio for outcomes

Results

- A total of 1.78 million adult patients were admitted with a diagnosis of acute decompensation of cirrhosis.
- Of these, 945,440 (52.8%) were admitted to large bed size hospitals.
- Patients admitted to large bed size hospitals had a higher incidence of hepatic encephalopathy, ascites, and variceal bleeding.
- Of the total patients admitted with a decompensating event, 830,365 patients (46.4%) met criteria for ACLF.
- A total of 453,095 patients (54.6%) who developed ACLF were admitted to large bed size hospitals.
- Our study found that patients admitted to large bed size hospitals have 20% higher odds of developing ACLF (aOR-1.20, 95% CI-1.17-1.23, p<0.001).
- Large bed size hospitals were also associated with a higher risk of developing ACLF grades 2 and 3 (aOR-1.27, 95% CI-1.24-1.32, p<0.001 and aOR-1.73, 95% CI-1.51-1.98,p<0.001, respectively).

Conclusion

- Our study identifies hospital bed size as a significant predictor of development of ACLF in patients admitted with decompensated cirrhosis.
- Targeted education and implementation of best practices focused on large hospitals may help reduce the risks of ACLF.