

In-Hospital Outcomes in Patients with Takotsubo Cardiomyopathy and Malnutrition: Analysis from the National Inpatient Sample

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Introduction

- Approximately 3% of patients with inpatient hospital stays have **malnutrition**. This is associated with a more extended hospital stay, higher cost, and mortality.
- Malnutrition is associated with poor prognosis in cardiovascular diseases such as hypertension and heart failure.
- There is insufficient evidence to suggest that malnutrition affects the prognosis of patients hospitalized with **Takotsubo Cardiomyopathy (TCM)**.

Method

- We queried the National Inpatient Sample (NIS) for adults hospitalized with **TCM with severe or mild-moderate protein-calorie malnutrition** from 2016 to 2020.
- The primary outcome was inpatient mortality. Secondary outcomes included cardiac arrest, cardiogenic shock, respiratory failure/mechanical ventilation, acute kidney injury, vasopressor use, palliative consult, length of stay, and total hospital charges.
- Multivariate logistic regression was used to estimate odds ratios (ORs) with 95% confidence intervals (CIs).
- A p-value of 0.05 was considered significant.

Conclusion

- In patients with TCM, severe protein-calorie malnutrition significantly worsens clinical outcomes compared to mild-moderate malnutrition.

Variables	Takotsubo and Malnutrition (%)		P- values
	Severe	Mild-Moderate	
PATIENT CHARACTERISTICS			
Age, years, mean ±SE	67 ± 13.8	68 ± 13.9	
SEX			0.1623
Male	27.02	24.81	
Female	72.98	75.19	
RACE			0.6906
White	76.46	78.61	
Black	11.28	9.6	
Hispanic	5.96	5.72	
Asian	2.64	2.38	
CARDIOVASCULAR COMORBIDITIES			
Dyslipidemia	29.75	35.82	0.0004
History of MI	8.5	9.6	0.2917
History of PCI	0.14	0.17	0.8407
History of CABG	0.99	1.44	0.2282
History of Pacemaker Placement	1.97	1.95	0.9587
Coronary artery disease	0.99	1.52	0.1677
History of stroke	3.62	3.81	0.7744
Hypertension	23.73	27.18	0.0278
Peripheral vascular disease	4.37	4.57	0.7838
Diabetes	4.89	5.59	0.0175
Obesity	2.87	6.1	<0.0001
Smoking	21.9	22.52	0.6865
NON-CARDIOVASCULAR COMORBIDITIES			
Liver disease	14.1	13.04	0.4038
Electrolyte abnormalities	67.34	61.3	0.0004
Maintenance Hemodialysis	1.93	1.78	0.7698
Oxygen dependence	8.13	7.11	0.3094
Anemia	50.85	45.22	0.0023
COPD	31.44	30.31	0.5034
Hyperthyroidism	0.94	0.68	0.4114
Depression	19.36	20.24	0.5469
OSA	3.43	4.83	0.0543
HOSPITAL CHARACTERISTICS			
Hospital Bed-size			0.1311
Small	15.7	13.97	
Medium	23.5	26.5	
Large	60.81	59.53	
Hospital Region			0.0006
Northeast	23.03	16.93	
Midwest	28.1	32.51	
South	27.35	29.72	
West	21.52	20.83	
Hospital Teaching Status			0.0171
Rural	4.51	3.81	
Urban non-teaching	14.14	17.87	
Urban teaching	81.34	78.32	
Hospital Location			0.1659
Rural	4.7	3.5	
Urban	95.3	96.5	
CHARLSON COMORBIDITY INDEX SCORE			
1	15.74	14.9	0.4368
2	20.1	20.66	
≥3	59.12	60.46	

Table 1A shows baseline characteristics and comorbidities.

Variable	Severe (%)	Mild-Moderate (%)	Regression analysis, OR (95% CI) P-value	
			Univariate regression	Multivariate regression
Mortality	14.5	10.2	1.50 (1.19-1.89) 0.001	1.53 (1.12-2.07) 0.006
Cardiac arrest	3.9	4.98	0.78 (0.55-1.11) 0.169	0.69 (0.44-1.06) 0.090
Cardiogenic shock	10.3	10	1.03 (0.81-1.31) 0.786	0.90 (0.67-1.22) 0.514
Respiratory failure	34.7	33.4	1.06 (0.91-1.23) 0.447	0.94 (0.77-1.14) 0.514
Mechanical ventilation	2.6	2.1	1.22 (0.75-2.01) 0.418	0.99 (0.56-1.75) 0.971
NSTEMI	11.8	11.9	0.99 (0.79-1.23) 0.903	1.04 (0.79-1.37) 0.766
Acute kidney injury	36.27	33.53	1.12 (0.97-1.31) 0.118	1.00 (0.82-1.22) 0.966
Vasopressor	10.1	8.2	1.26 (0.98-1.62) 0.077	1.19 (0.85-1.68) 0.306
Palliative Consult	15.6	10.9	1.51 (1.21-1.89) 0.000	1.74 (1.29-2.34) 0.000
Length of stay	15.34 ± 17.51	12.9 ± 14.07		
Total hospital charge	215,441.9 ± 366,069.6	188,171.6 ± 291,660.8		

Table 1B shows primary and secondary outcomes.