The Impact of Obesity on Hospitalization Outcomes in Patients with Multiple Myeloma: A National Inpatient Sample Analysis

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INTRODUCTION

- Multiple myeloma (MM) is a hematologic malignancy associated with significant healthcare burden due to its chronicity and complications.
- Obesity, a global epidemic, is linked to cancer development and progression through chronic inflammation, immune dysregulation, and metabolic alterations.
- While traditionally associated with worse outcomes, emerging data suggest a potential "obesity paradox," where obesity may confer survival benefits in certain malignancies.

AIM

- This study aims to compare in-hospital outcomes of MM patients based on their obesity status, utilizing data from the National Inpatient Sample (NIS) database.
- Understanding these outcomes is crucial for developing strategie to improve patient care and health policy in this population.

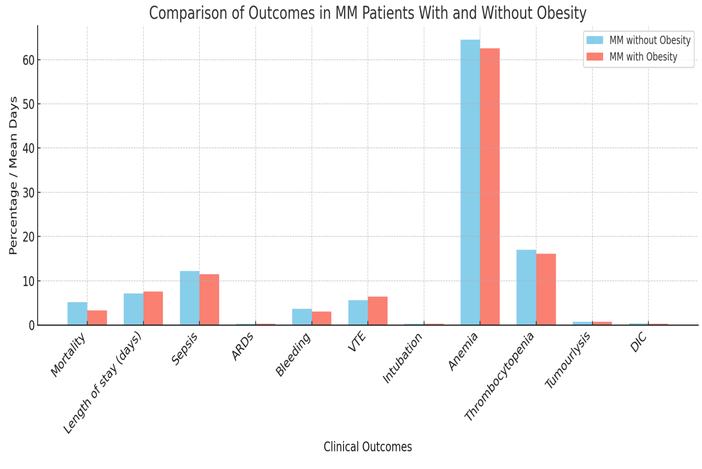
METHODS

- A retrospective cohort analysis was conducted using the National Inpatient Sample (NIS) database from 2016 to 2020.
- MM patients were identified using ICD-10 codes and stratified by obesity status.
- Outcomes assessed included in-hospital mortality, length of stay (LOS), total hospital charges, and complications (e.g., sepsis, bleeding, ARDS, VTE).
- Statistical analyses included chi-square and t-tests, with multivariate logistic regression used to calculate adjusted odds ratios (aORs), controlling for demographics, comorbidities, and hospital-level factors.

Outcome	MM without Obesity	MM with Obesity	Adjusted Odds Ratio	P Value	95% Confidence Interval
Mortality	5.2%	3.3%	0.69	0.005	0.626–0.769
Length of stay (days)	7.13	7.61	1.34	0.002	1.119–1.626
Sepsis	12.2%	11.5%	0.95	0.094	0.895–1.008
ARDS	0.26%	0.26%	1.07	0.694	0.743–1.560
Bleeding	3.7%	3.08%	0.87	0.020	0.789–0.979
VTE	5.6%	6.4%	1.18	0.005	1.096–1.284
Intubation	0.28%	0.26%	0.92	0.672	0.635–1.339
Anemia	64.5%	62.5%	0.90	0.005	0.869–0.944

RESULTS

- Among 591,745 hospitalized MM patients, 11.2% were obese.
- Obese patients were younger (mean age 66 vs. 69), more likely to be female (51.2% vs. 43.4%) and Black (27.1% vs. 21.9%), and had higher hospitalization costs ($89,605 vs. $83,560, p<0.001).
- Obesity was associated with significantly lower in-hospital mortality (3.3% vs. 5.2%; aOR 0.69, 95% CI 0.63–0.77, p=0.005), but longer LOS (7.61 vs. 7.13 days; aOR 1.34, p=0.002).
- Obese patients had higher odds of VTE (aOR 1.18, p=0.005), but lower odds of bleeding (aOR 0.87, p=0.020), anemia (aOR 0.90, p=0.005), and DIC (aOR 0.70, p=0.044).
- No significant differences were seen in sepsis, ARDS, or intubation rates.



CONCLUSIONS

- Obesity in MM patients is associated with paradoxically lower inpatient mortality despite higher healthcare utilization and VTE risk. The reduced rates of bleeding, anemia, and DIC suggest a complex and potentially protective physiological role of obesity.
- This paradox may also reflect methodological limitations or unmeasured confounders, emphasizing the need for prospective studies to uncover the underlying mechanisms and improve risk stratification in MM.

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