Understanding the Trend of Myocardial Infarction in Patients With Myeloproliferative Neoplasms: An Analysis of the National Inpatient Sample

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Introduction

Myeloproliferative neoplasms (MPNs) are associated with an increased risk of cardiovascular complications, including myocardial infarction (MI). Multiple comorbidities and risk factors contribute to the prevalence and progression of MI in these patients. This study aims to identify commonly associated variables to enhance our understanding and optimize patient care to reduce morbidity and mortality in MPNs.

Methods

This was a retrospective analysis of the 2022 National Inpatient Sample (NIS) database, part of the Healthcare Cost and Utilization Project (HCUP). Patients with MPNs were identified and stratified into two cohorts: those who developed MI and those who did not. Logistic and linear regression models were employed to assess the associations between various comorbidities, risk factors, and patient outcomes.

Results

Among 193,925 hospitalized patients with MPNs, 4,935 (2.54%) had a documented MI. Patients with MI were older (mean age: 72 vs 69 years) and incurred significantly higher hospitalization costs ($132,129 vs $90,059). MI was more frequent in patients with specific comorbidities. Among those with splenomegaly, 2.99% had MI vs 2.58% in those without. Similarly, the MI rate was higher among patients with portal hypertension (2.98% vs 2.59%); type 2 diabetes (3.51% vs 2.18%); heart failure (4.40% vs 1.69%); coronary artery disease (5.55% vs 1.61%); chronic kidney disease (3.29% vs 2.39%); hyperlipidemia (3.58% vs 1.80%); and atrial fibrillation (3.16% vs 2.40%). Conversely, MI was less common among patients receiving anticoagulation (2.44% vs 2.56%) or antihypertensive therapy (2.01% vs 2.78%). Hospital and admission characteristics also influenced MI prevalence. MI rate was higher among patients with a Charlson Comorbidity Index (CCI) of 3 (2.53%) vs CCI of 1 (1.40%); in rural hospitals (2.85%) vs urban teaching hospitals (2.45%); and in government (3.34%) vs private nonprofit hospitals (1.94%). MI was more common during nonelective (2.70% vs 1.10%) and weekend admissions (3.12% vs 2.38%).

Conclusion

Several key comorbidities were strongly linked to MI in MPN patients, while anticoagulation use and hypertension management appeared protective. Recognizing these associations can guide targeted interventions to reduce MI risk, enhance patient outcomes, and alleviate healthcare burdens. Study findings represent associations rather than causality. Further prospective research is needed to elucidate the underlying mechanisms.

References

1. Outcomes of Patients With Myeloproliferative Neoplasms Admitted With Myocardial Infarction: Insights From National Inpatient Sample. JACC: CardioOncology Volume 5, Number 4

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