Age, Male Sex, and Comorbidities Predict In-Hospital Mortality After Periprosthetic Hip Fracture.

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INTRODUCTION: Periprosthetic hip fractures (PPHFx) are challenging complications that follow total hip arthroplasty (THA). Identifying factors predictive of increased mortality is key to improving management of high-risk PPHFx patients. The study aims to identify predictors of mortality associated with PPHFx.

METHODS: We conducted a retrospective analysis of the Nationwide Inpatient Sample (NIS) for all patients diagnosed with periprosthetic fracture around the internal prosthetic hip joint (ICD-10, Clinical Modification codes M9701XA and M9702XA) between 2016 and 2019. We used a multivariable logistic regression model to assess predictors of in-hospital mortality. We considered the following predictor variables: age, sex, race, comorbidities, primary payment source, median income quartile, admission day, procedure type, hospital bed size, and hospital type.

RESULTS: 77,565 patient encounters met the inclusion criteria. In-hospital mortality was 1.7%. Age was strongly predictive: patients ≥90 had an odds ratio (OR) of 11.0 (95% CI: 4.8-25.5, p<0.01) compared to those <70. Female sex was protective (OR: 0.6, p=0.01). Comorbidities with the highest odds of mortality included metastatic cancer (OR: 8.4, p<0.01), liver disease (OR: 8.2, p<0.01), paralysis (OR: 6.9, p<0.01), fluid and electrolyte disorders (OR:4.1, p<0.01), and pulmonary circulation disorders (OR: 3.6, p<0.01).

DISCUSSION AND CONCLUSION: Older patients, male patients, and those with comorbidities, particularly metastatic cancer, liver disease, and paralysis are at increased risk of in-hospital mortality following periprosthetic fractures. Patients with these high-risk predictors with PPHFx may warrant more thorough preoperative medical optimization.

Table 1: Predictors of In-Hospital Mortality Following Periprosthetic Hip Fracture

Predictor	Odds Ratio	CI (LL)	CI(UL)	P-value
Age				
70-90	2.5	1.1	5.7	0.022
80-89	5.0	2.3	11.1	<0.001
90+	11.0	4.8	25.5	<0.001
Sex				
Female	0.6	0.4	0.9	0.010
Comorbidity				
Metastatic cancer	8.4	2.2	32.7	0.002
Liver disease	8.2	3.6	18.9	<0.001
Paralysis	6.9	1.8	27.1	0.006
Fluid and electrolyte disorders	4.1	2.6	6.4	<0.001
Pulmonary circulation disorders	3.6	1.8	7.2	<0.001
Weight loss	2.9	1.6	5.2	<0.001
Neurological disorders	2.4	1.4	4.1	0.001
Coagulopathy	2.2	1.2	4.1	0.015
Diabetes, complicated	2.1	1.2	3.8	0.014
Cardiac arrhythmias	1.8	1.1	2.9	0.011

Data derived from the NIS. CI (LL) and CI (UL) refer to the 95% confidence interval lower and upper limits, respectively. Reference variables were age <70 years, male sex, and absence of comorbidity.