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Elevated International Normalized Ratio (INR) is Associated with Higher Risk of 30-Day Mortality Rates Among Patients Recovering from Surgery for Femoral Shaft Fracture

Introduction:

Patients with an elevated international normalized ratio (INR) may have increased perioperative risks, including higher mortality rates. This study examines the relationship between preoperative INR levels and 30-day mortality among patients recovering from open reduction and internal fixation (ORIF) for femoral shaft fractures.

Methods:

A retrospective cohort study using the National Surgical Quality Improvement Program (NSQIP) database (2012–2021) included patients aged ≥ 18 years undergoing ORIF. The primary exposure was an elevated INR (≥ 1.25) within 72 hours preoperatively. Patients were grouped by INR status. Potential confounders included demographics, health status, and procedural characteristics. Chi-square tests assessed cohort differences, and multivariable regression adjusted for confounders to determine the impact of elevated INR on 30-day postoperative mortality risk.

Results:

Among 5,580 ORIF cases, 665 (11.9%) had an elevated INR (≥ 1.25) preoperatively. In both cohorts, most patients were aged 80–89, White, non-Hispanic, female, had normal BMI, no chronic immunosuppression, no diabetes, no smoking history, ASA classification of 3, independent functional status prior to surgery, and elective case designation. Additionally, most patients presented from home and received general anesthesia [Table 1]. On multivariable regression adjusting for potential confounders, patients with an elevated INR had 1.81 times higher odds (95% CI 1.17 to 2.74; $p=0.006$) of 30-day mortality following ORIF for femoral shaft fracture compared to patients with an INR < 1.25 [Table 2].

Conclusion:

Patients with an elevated INR before surgery had a significantly increased risk of 30-day mortality following ORIF. Further studies into risk stratification and perioperative anticoagulation management may help reduce mortality risk, particularly among patients presenting with coagulopathy before surgery.