Evaluating Readmission Risk for Elderly Patients following Operative Fragility Fractures

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INTRODUCTION: Fragility fractures in elderly patients are associated high rates of readmissions and adverse events. Current standards for patient assessment and prognostication of postoperative outcomes fall short of capturing the comprehensive array of variables linked to readmission risks. The purpose of this study is to better elucidate the risk factors contributing to readmission through predictive models.

METHODS: This was a retrospective cohort study within our institution. Our analysis included patients over 50 years who sustained a fragility fracture requiring surgical fixation between 2016 and 2023. The primary outcome of interest was hospital readmission within 30-, 90-, and 365-days following surgical fixation. We built logistic regression models to identify risk factors associated with the likelihood of readmission. For each model, we split the data with 50% for training and 50% for validation.

RESULTS:

Results indicate that certain comorbidities significantly influence the likelihood of readmission within the study period. Within 365-days following surgical fixation, patients with lymphoma (OR:4.73 [Cl:1.54, 14.54]), chronic liver disease (OR:2.29 [Cl 1.50, 3.50]), depression (OR:1.69 [Cl:1.35, 2.10]), peripheral vascular disease (OR:1.69 [Cl:1.14, 2.51]), stroke or transient ischemic attack (OR:1.58 [Cl:1.22, 2.05]), congestive heart failure (OR:1.54 [Cl:1.14, 2.10]) and tobacco use disorder (OR:1.37 [Cl:1.05, 1.78] were remarkably more likely to be readmitted. Although not statistically significant, patients with private insurance were 16% less likely to experience readmission, while those under special categories insurance showed a 24% increase in readmission risk, (OR:0.84 [Cl:0.38, 1.87]) and (OR:1.24 [Cl:0.52, 2.95]), respectively. Similar patterns are observed within 30- and 90-days following surgical fixation.

DISCUSSION AND CONCLUSION: Our model represents a pivotal step toward more personalized and proactive postoperative care for elderly patients with fragility fractures. The model can be used by healthcare providers to tailor follow-up care and interventions to address identified risk factors, ultimately reducing readmission rates and improving patient outcomes.

