Inpatient fall risk following single-level posterior lumbar fusion: A national registry study

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INTRODUCTION: Posterior lumbar fusion (PLF) is frequently considered for various spinal pathologies. While many outcome metrics have been assessed, post-operative inpatient fall (IPF) have not been extensively studied in this patient population. The current study aimed to define the rate and risk factors of an IPF in this population to help critically examine and evolve care pathways to minimize their occurrence.

METHODS: Adult patients who underwent single-level PLF were abstracted from the 2010 – 2022 M161Ortho PearlDiver Database. Patients who then had an IPF were determined based on administrative coding. Various patient clinical and nonclinical variables were extracted. Incidence of secondary injuries and cost incurred related to the IPF were determined. Variables were compared using multivariate logistic regression.

RESULTS SECTION: Of the 342,890 patients who underwent PLF, IPF was identified for 4,379 (1.4%). Independent predictors of an IPF included patients with active psychosis [OR, 3.13], history of falling [OR, 2.44], active delirium [OR, 2.37], commercial insurance [OR, 1.59], Medicaid insurance [OR, 1.59], dementia [OR, 1.18], alcohol use disorder [OR, 1.10], older age [OR, 1.09], higher comorbidity (ECI) [OR, 1.08], and longer length of stay [OR, 1.02] [$p < 0.05$ for each]. Of patients who fell, 44 (1.0%) had a secondary head injury, and 42 (1.0%) suffered a fracture as a result. IPF incurred greater cost compared to patients who did not ($36,865 vs $33,921) [$p < 0.001$].

DISCUSSION: In this national sample of patients who underwent single-level PLF, post-operative IPF presented as an uncommon, but not infrequent occurrence with non-negligible secondary clinical and financial consequences. Our findings emphasize the importance of preoperative patient screening as an integral component of patient safety optimization.

SIGNIFICANCE/CLINICAL RELEVANCE: Inpatient falls are significant events that can often be avoidable, but do happen. Our findings emphasize the importance of preoperative patient screening as an integral component of patient safety optimization.

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IMAGES AND TABLES:

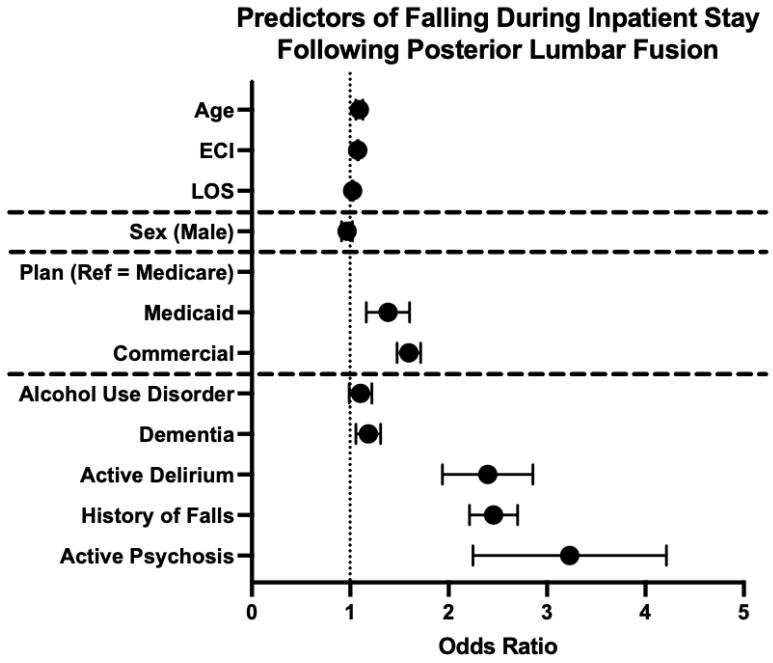

Figure 1: A forest plot of the odds ratio from the multivariate analysis showing the predictive factors for falling during one's inpatient stay following posterior lumbar fusion