Loss of Independence Following Trochanteric Fracture Fixation Is Predicted by Frailty and Fracture Complexity Rather Than Implant Type: A Secondary Analysis of the INSITE Trial

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Purpose: Our objective was to identify predictors of a loss of independence following trochanteric fracture fixation.

Methods: We used data from the INSITE trial (intramedullary nailing [IMN] vs sliding hip screws [SHS] for ambulatory patients >18 years with trochanteric fractures). We defined a loss of independence as moving from living independently at home at admission, to an institution or with full-time care at 1 year. We used multivariable regression to identify predictors of a loss of independence, and included all patients (adjusting for implant type) in the primary analysis. We further stratified the analysis by implant type to examine if predictors differed between groups.

Results: We included 481 patients, 254 in the IMN group (52.8%), and 227 in the SHS group (47.2%). At 1 year, 56 patients (11.6%) had lost independence. Patients who lost their independence were more likely to be older, have more comorbidities, a multifragmentary fracture, or use a mobility aid prefracture. Following covariable adjustment, age, fracture type, nervous system comorbidity, and previous stroke were associated with a loss of independence at 1 year. Each year increase in age was associated with a 1.09 (1.04-1.14) increased odds of loss of independence, while multifragmentary fractures were associated with a 1.83 (1.00-3.34) increased odds of loss of independence. History of nervous system comorbidity and stroke were associated with an increased odds of loss of independence by 4.27 (1.78-10.25) and 2.29 (1.13-4.61), respectively. Implant type was not associated with loss of independence at 1 year. Stratified by implant type, patients in the SHS group were more likely to lose independence if they had a multifragmentary fracture (odds ratio [OR] 2.74 [1.10-6.80]), a nervous system comorbidity (OR 4.54 [1.34-15.36]), or used a mobility aid prefracture (OR 3.52 [1.48-8.35]). In contrast, patients in the IMN group were more likely to lose independence if they were older (OR 1.09 [1.03-1.15]) or had a history of stroke (OR 2.60 [1.02-6.61]).

Conclusion: Older patients, those using a mobility aid prefracture, having a multifragmentary fracture, a history of nervous system disorder, or stroke are more likely to lose their independence following trochanteric fractures. While we did not identify implant type as a predictor of loss of independence, the association between multifragmentary fractures, nervous system disorders, or mobility aid use with the loss of independence appeared to be limited to patients in the SHS group. This suggests that frail patients with complex fracture types may be better suited to IMN fixation.