Predictors of Adverse Events Following Intramedullary and Extramedullary Fixation of Trochanteric Hip Fractures

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Purpose: We aimed to identify predictors of adverse events (AEs) following trochanteric hip fracture fixation.

Methods: We used data collected from a previously completed randomized trial of patients >17 years old with trochanteric fractures for these analyses. We used multivariable regression to identify independent predictors of AEs up to 52 weeks postoperatively. AEs included any medical occurrence, while serious AEs (SAEs) included those that prolonged patients' hospital stay, resulted in persistent disability, life-threatening morbidity, or death, and were not directly related to the device. Device-related AEs (DAEs) were those likely directly related to the implant.

Results: We included 714 patients in this analysis (intramedullary nailing [IMN]: 369; sliding hip screw [SHS]: 345). Of these, 182 patients (25.5%) experienced an AE, 173 an SAE (24.2%), and 42 a DAE (5.9%). The proportion of patients who experienced AEs was not significantly different based on implant type. In the IMN group, patients admitted from an institution or home with care (vs living at home independently) were more likely to experience an AE (odds ratio [OR] 1.84, 1.03-3.30), and an SAE (OR 3.06, 1.70-5.53). Similarly, patients in the IMN group with an American Society of Anesthesiologists class of 3-4 (vs 1-2) were more likely to experience an AE (OR 2.06, 1.15-3.70) and SAE (OR 3.26, 1.75-6.06). We found similar associations in the IMN group for patients with heart or kidney comorbidities. The only variable significantly associated with DAEs in the IMN group was previous fracture (OR 3.02, 1.05-8.72). In the SHS group, patients with a concomitant injury experienced more AEs (OR 2.54, 1.05-6.14), and SAEs (OR 2.38, 1.03-5.49). Those with anemia reported more AEs (OR 3.04, 1.39-7.20), while those with hypertension experienced more SAEs (OR 1.98, 1.01-3.89). Increased body mass index was the only variable significantly associated with DAEs in the SHS group (OR 1.09, 1.01-1.17).

Conclusion: These data suggest that frail or dependent patients may experience more morbidity following IMN of trochanteric fractures, and thus may be more suited to SHS fixation. Alternatively, patients with concomitant injuries or increased BMI managed with SHSs may be more likely to experience AEs or SAEs postoperatively.