## Gender Disparities in Time to Surgical Fixation for Open Fixation of Below-Knee Fractures

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INTRODUCTION: Below-knee fractures are a common orthopaedic injury and prolonged time to surgical fixation has been demonstrated to increase the likelihood of poorer clinical outcomes. Disparities in musculoskeletal care have been demonstrated with respect to race following different fracture etiologies, but little has been reported regarding gender disparities for fracture fixation about the foot, ankle, and lower leg. After using propensity score matching and controlling for confounding variables, how do times from hospitalization to operative fixation for below-knee fractures and length of hospital stay differ between women and men? After using propensity score matching and controlling for confounding variables, how do the rates of 30-day postoperative complications differ between women and men?

METHODS:

Using the National Surgical Quality Improvement Program database, we analyzed 26,683 adult patients (16,258 [61%] women) with complete demographic and morphologic data undergoing open reduction and internal fixation of a below-knee fracture between 2005 and 2020 at participating hospitals. These patients underwent fixation for the following fractures: bi- or trimalleolar (n = 13,478; 51%), unimalleolar (n = 5694; 21%), tibial or fibular shaft (n = 4652; 17%), pilon (n = 2567; 10%), and foot (n = 292; 1%). Using 1:1 propensity score matching controlling for preoperative characteristics and comorbidities, we identified 10,425 women with equal propensity scores (p = 0.99) to the men in our cohort. Using matched cohorts, we used descriptive statistics and multivariable logistic regression modeling to determine differences in wait times from hospitalization to operative fixation, delayed vs. same-day discharges, and 30-day postoperative adverse events.

RESULTS: We found the mean time between admission and operative fixation (OR, 1.1; 95% CI, 1.1-1.2; p < 0.01) and total length of stay (OR, 1.2; 95% CI, 1.1-1.2; p < 0.01) was longer for women compared to men. Women also had increased odds of a delayed discharge (OR, 1.2; 95% CI, 1.1-1.3; p < 0.01) and decreased odds of a same-day discharge (OR, 0.9; 95% CI, 0.8-0.9; p < 0.01) compared to men. Women were not more likely to be at increased overall risk for any (OR, 0.9; 95% CI, 0.8-1.0; p = 0.24), severe (OR, 0.9; 95% CI, 0.7-1.0; p = 0.08), or minor (OR, 0.9; 95% CI, 0.8-1.0; p = 0.15) postoperative adverse events compared to men. Women were less likely to experience a reoperation (OR, 0.8; 95% CI, 0.7-1.0; p = 0.049) or wound complication (OR, 0.7; 95% CI, 0.6-0.8; p < 0.01) but more likely to develop a urinary tract infection (OR, 2.4; 95% CI, 1.6-3.6; p < 0.01) compared to men.

DISCUSSION AND CONCLUSION: Our findings suggest that women may experience prolonged time to surgical fixation and hospital stays following operative fixation of below-knee fractures. Providers should be made aware of the disparities their patients encounter and seek to optimize this aspect of patient care. Future studies should investigate how intersectional disparities may contribute to patient experiences in musculoskeletal care.