Comparison of Outpatient vs Inpatient Lower Extremity Nonunion Surgery

Bradley John Lauck, Anthony Paterno, Susan Marie Odum¹, Joseph R Hsu, Rachel Seymour¹, Roman Natoli, Paul Edward Matuszewski², Andrew Chen³, EMIT Collaborative

¹Atrium Health Musculoskeletal Institute, ²University of Kentucky, ³UNC Orthopaedics

INTRODUCTION: Orthopaedic surgery is trending towards emphasizing shorter lengths of stay and aiming to perform more outpatient surgery when safe to do so. While evidence suggests lower complication rates and lower costs for outpatient hip and knee arthroplasty, this benefit is not well described in orthopaedic trauma. The purpose of this study is to assess the outcomes of inpatient versus outpatient surgery in lower extremity nonunion surgery. We hypothesize that there will be no differences in outcomes between the two groups.

METHODS: A retrospective analysis of 981 patients who underwent surgical fixation of aseptic tibial and femoral nonunions gathered from 14 Level 1 trauma centers was performed. Based on length of stay (LOS), patients were stratified into two groups: outpatient (LOS=0; n=146) and inpatient (LOS>1; n=835) Primary outcomes of complications (post-operative infection, reoperation, and readmission) were compared between inpatient and outpatient cases using Chi-square tests Multivariable logistical regression models were developed to determine the probability of infection, readmission and reoperation after controlling for potential risk factors , e.g. age, BMI, tobacco, ASA classification, insurance, and use of bone graft.

RESULTS: All complication rates were higher among inpatient cases. Of the 835 inpatient patients, 11.5% developed an infection compared to 9.0% of outpatients (p=0.36), 19.0% were re-admitted compared to 11.0% (p=0.03), and 24.5% versus 20.5% required a reoperation (p=0.34). When controlling for confounders such as age, BMI, tobacco, ASA classification, insurance, and use of bone graft, patients who had surgery in an outpatient setting had a reduced odds of infection 0.74 (p=0.39), readmission 0.76 (p=0.35), and reoperation 0.92 (p=0.73) compared to those who had surgery in an inpatient setting, but these were not statistically significant.

DISCUSSION AND CONCLUSION: There does not appear to be a significant difference in outcomes with inpatient vs outpatient tibial and femoral aseptic nonunion surgery. Further research should be conducted to identify cost savings of outpatient nonunion surgery and what specific patient factors will optimize outcomes.