

Factors Affecting Patient Reported Outcomes Following Tibial Plateau Fracture

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Background/Objective:

Tibial Plateau Fractures (TPFs) account for ~1% of all fractures and ~8% of all fractures in the elderly. Despite the frequency and severity of TPFs there is a paucity of data evaluating factors that affect patient recovery after injury and surgical fixation. We hypothesized that patient reported outcomes are modulated by several variables including patient demographics, comorbidities, injury characteristics, and Social Determinants of Health (SDH).

Methods:

In this retrospective cohort study, we collected the interval patient reported outcome scores (PROs) of patients with TPFs treated with open reduction internal fixation occurring between February 2013 and November 2020. PROs included 1) Visual Analog Scale (VAS) pain scores, 2) Patient-Reported Outcomes Measurement Information System (PROMIS) Pain Interference (PI) scores, and 3) Physical Function (PF) survey scores. Patient demographics, comorbidities, fracture characteristics, insurance status, and area deprivation index (ADI) of the patient's residence were collected via electronic medical record review. Bivariate analyses of PRO scores to the aforementioned factors were performed using generalized estimating equations to account for participant repeated measures, with $p < 0.05$ being considered significant.

Results:

196 patients were evaluated with >1 year follow-up. It was determined that patients' insurance status affected their VAS ($p < 0.001$), PI ($p < 0.001$), and PF ($p < 0.001$) scores. Patient ADI affected VAS ($p < 0.001$) and PI ($p = 0.0026$), with increased ADI scores resulting in worse PROs. Diabetes and depression were found to negatively impact VAS ($p = 0.010$ & 0.008 respectively) and PI ($p = 0.0044$ & 0.0048 , respectively). Additionally, age and sex both influence VAS ($p = 0.0006$ & 0.0033 , respectively), and compartment syndrome was associated with decreased PF ($p = 0.0206$).

Conclusion and Potential Impact:

To our knowledge, this is the first investigation to evaluate the effect of SDH on patient recovery following surgical fixation of TPFs—suggesting that insurance status and residence ADI scores are associated with worsened PROs. Further investigation is necessary to identify if these factors are independent of other covariates.