

## Preexisting Knee Osteoarthritis and Joint Depression Are Associated with TKA Requirement After Tibial Plateau Fracture in Patients $\geq 60$ Years of Age

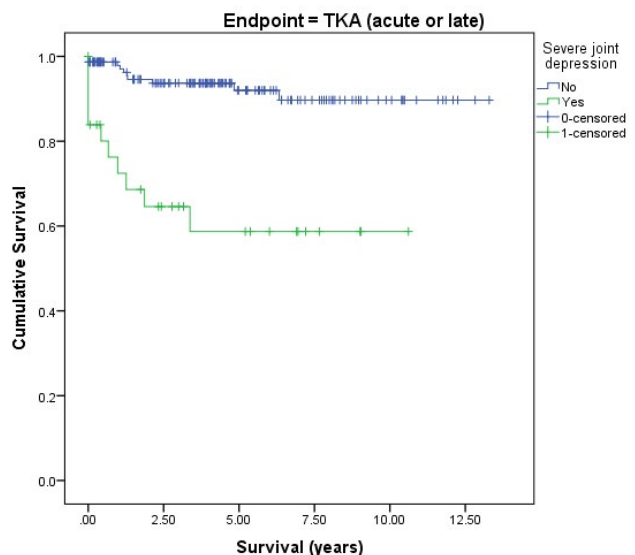
William M. Oliver, MD; Chloe E.H. Scott, MD, FRCS; Shreya Gupta, MBChB; Dominika Sadczuk, MBChB; Eleanor Davidson, MD, FRCS; Deborah J. Macdonald, BA; Tim O. White, MD, FRCS; John F. Keating, FIOTA

**Purpose:** This study aims to determine the rate of and risk factors for total knee arthroplasty (TKA) requirement after operative management of tibial plateau fractures in older adults.

**Methods:** This was a retrospective cohort study of 182 displaced tibial plateau fractures in 180 patients aged  $\geq 60$  years over a 12-year period with minimum follow-up of 1 year: mean age  $70.7 \pm 7.7$  (range, 60 to 89); 139/180 (77.2%) female. Demographic data, clinical frailty scores, bisphosphonate use, mobility and residential status, mechanism of injury, operative management, complications, reoperations, and mortality were recorded. Radiographic assessment included Schatzker classification; preexisting knee osteoarthritis (KOA), joint depression measurement, quality of reduction, loss of reduction, and PTOA (posttraumatic osteoarthritis) presence.

**Results:** Nearly half were Schatzker II fractures ( $n = 85, 47\%$ ). Radiographic KOA was present at fracture in 59 of 182 (32.6%). Fracture fixation was performed in 174 cases (95.6%) and acute TKA in 8 (4.4%). 13 patients underwent late TKA (7.5%). Most failures occurred within 2 years. At 5 years 12% (6.0-16.7 95% confidence interval [CI]) had required TKA and 21% (14.4-27.4 95% CI) had radiographic PTOA severe enough to warrant TKA. Receiver operating characteristic (ROC) curve analysis identified a threshold of 13.5 mm depression, which was defined by experts as severe (area under the ROC curve [AUC] 0.963,  $P < 0.001$ , sensitivity 87%, specificity 99%). Severe joint depression (Figure 1) and preexisting KOA were associated with worse survival for both TKA and radiographic indication for late TKA (log rank  $P < 0.001$ ). 12 of 25 patients with severe joint depression had radiographic indication for late TKA and 11 underwent TKA. Severe joint depression (hazard ratio [HR] 2.49 [1.35-4.61 95% CI],  $P = 0.004$ ), preexisting KOA (HR 2.23 [1.17-4.23],  $P = 0.015$ ), and inflammatory arthropathy (HR 2.4 [1.04-5.53],  $P = 0.039$ ) were independently associated with radiographic indication for TKA.

**Conclusion:** Severe joint depression and preexisting arthritis are independent risk factors for both severe PTOA and TKA after tibial plateau fracture in older adults. These features should be considered as indications for primary management with acute TKA.



See the meeting website for complete listing of authors' disclosure information. Schedule and presenters subject to change.