

## Simultaneous Fracture Fixation and Total Hip Arthroplasty for Osteoporotic Acetabular Fractures in the Elderly

*Daud Chou, FRCS (Ortho); Ross Coomber, FRCS (Ortho); Thomas Baigent, MBChB; Joseph Martin Queally, MD; Peter Hull, FRCS (Ortho), MBChB; Andrew Douglas Carrothers, FRCS (Ortho), MD; Ronan O'Leary, MD Addenbrookes, Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom*

**Purpose:** Comminuted, displaced acetabular fractures with articular impaction in the elderly osteoporotic population present significant treatment challenges. To allow early postoperative rehabilitation and limit the sequelae of immobility and avoid the risk of posttraumatic degenerative changes, simultaneous fracture fixation and total hip arthroplasty (THA) has been advocated in selected patients. We present a consecutive series of 41 patients treated with simultaneous acetabular fracture fixation and THA and describe their immediate postoperative and most recent clinical and radiographic outcomes.

**Methods:** 41 consecutive patients between April 2014 and May 2017 underwent simultaneous fracture fixation and THA for acetabular fractures in patients over 60 years. Electronic medical notes were reviewed retrospectively to assess process of care, perioperative physiology, immediate postoperative complications, and mortality. Median follow-up was 30 months (range, 13-57 months). Patient-reported outcomes were assessed at 1 year with Oxford Hip Scores (OHS) and EuroQol-5 Dimensions (EQ-5D) questionnaires. Radiographic assessment was performed at 6 weeks and at 1 year for signs of fracture nonunion and early implant problems.

**Results:** The median age at surgery was 77 years (range, 57-94), 70% were American Society of Anesthesiologists (ASA) grade III or above. Eight patients (20%) required intraoperative transfusion of packed red blood cells. 21 patients were sitting out in a chair by postoperative day 1, 60% were mobilizing by postoperative day 5, 2 (5.7%) developed an acute kidney injury, 8 (20%) developed new episodes of respiratory signs, 9 (22.5%) experienced transient postoperative cognitive dysfunction, and 2 (5%) were returned to theater within 5 days, 1 with a hip dislocation and 1 with an iliac artery thrombus. There were no postoperative nerve palsies but 1 deep prosthetic joint infection requiring single-stage revision. There were no deaths within 30 days, 3 patients (7%) died within 12 months, and 1 patient died at 23 months. Median OHS at 1 year was 36 (range, 22-47). There were no fracture nonunions and 1 acetabular component had migrated on radiographic follow-up requiring revision.

**Conclusion:** To our knowledge this study presents the largest consecutive published series of osteoporotic acetabular fractures treated with a fix and replace technique. While simultaneous fixation and THA is conceptually attractive, this medically complex group of patients requires considerable support in the perioperative and immediate postoperative recovery period. Whichever surgical technique is employed it is likely that the perioperative medical support provided plays a significant role in the overall outcome of these patients. Further studies are required to provide clinicians with more information to decide on how best to provide a holistic management strategy for this injury in this frail patient cohort.