

Functional Outcomes in Acetabular Fractures in Older Patients: Operative versus Conservative Treatment. A Retrospective Review

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Background/Purpose: Acetabular fractures in older patients are increasing in incidence on a background of an aging population. The optimal management remains unknown with the two main options being conservative and operative treatment. Operative can consist of open reduction and internal fixation (ORIF) or, as has evolved more recently, ORIF combined with a total hip replacement. Difficulties with conservative management include the morbidity and mortality associated with prolonged immobilization. Difficulties with operative treatment include suboptimal fixation due to fracture comminution and/or poor bone quality due to osteoporosis and perioperative morbidity and mortality. The primary aim of this study was to compare functional outcomes in acetabular fractures in older patients treated conservatively with those in patients treated operatively. Secondary aims included comparison of radiological outcomes and complications.

Methods: Our institutional pelvic trauma database was reviewed for all patients aged 60 years or older who had conservative or operative treatment for a displaced acetabular fracture from January 2013 to December 2015. Functional outcome was assessed via the EuroQol (EQ)-5D and Oxford hip scores. Radiological outcome was assessed by AP pelvic radiographs. Complications were assessed by review of the patient's medical records.

Results: 40 patients underwent conservative treatment that consisted of weight bearing as tolerated. 12 patients received operative treatment (7 ORIF, 5 ORIF combined with total hip replacement). There were no significant differences between the groups in terms of age (80.2 years vs 76.8 years, $P < 0.05$) or fracture displacement at the time of injury. The follow-up time was similar at 11 months (SD 8.9) and 12.2 months (SD 6.1), respectively ($P < 0.05$). There was a significant difference in mortality with a higher rate in the conservatively managed group (10/40 vs 0/12) at time of follow-up. Of the remaining patients in each group, follow-up was high at 88% (25/30 and 12/12, respectively). Regarding the primary outcomes, patients in the operative group had a significantly higher functional outcome as measured by EQ-5D index (0-100) (76.7 vs 67.7, $P < 0.05$). There was no significant difference in the Oxford hip score (0-48) (30.4 vs 32.8, $P > 0.05$). On further subgroup analysis, patients who underwent ORIF combined with total hip replacement as opposed to ORIF alone fared best in terms of outcome for both functional (83.3 vs 78.8, $P < 0.05$) and Oxford hip scores (41 vs 32, $P < 0.05$). Significantly more patients in the conservative group were awaiting a total hip replacement for symptomatic posttraumatic osteoarthritis than in the ORIF group (4/25 vs 1/7, $P < 0.05$). Regarding postoperative complications, there was one myocardial infarction in the ORIF combined with total hip replacement group.

Conclusion: This is the first study that compares functional outcomes in acetabular fractures in older patients treated conservatively with operative treatment. Patients who underwent

operative treatment had a higher EQ-5D functional outcome. Of patients who had operative treatment, those who had ORIF combined with total hip replacement had the highest EQ-5D scores. Patients in the conservative group had a significantly higher mortality rate. Limitations to this study include it being a nonrandomized retrospective study. As the incidence of these fractures increases, a randomized controlled trial is now required to further investigate the above findings to determine the optimal treatment.