#45 - Systematic Review / Posters

Treatment Modalities And Outcomes Following Acetabular Fractures In The Elderly: A Systematic Review

Trauma / Polytrauma / Miscellaneous

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Background
The treatment of geriatric acetabular fractures remains controversial. Treatment options include nonoperative management, open reduction and internal fixation (ORIF), total hip arthroplasty (THA) with or without internal fixation, and closed reduction with percutaneous pinning (CRPP). Determining the optimal management for a specific patient depends on several factors, including fracture pattern, concomitant injuries, and medical comorbidities. In young patients, ORIF often leads to favorable functional outcomes if anatomic reduction of the joint is achieved. Poor reduction quality and advanced age are associated with higher rates of failure and conversion to THA following ORIF. While arthroplasty is established as a treatment option for acetabular fractures and offers the benefit of early weight-bearing and mobilization, it is associated with high rates of deep infection and dislocation. The unique risks and complexities associated with acetabular fractures in the elderly make these injuries especially challenging for the orthopedic traumatologist.

Objectives
The purpose of this study is to compare adverse event rates, functional and radiographic outcomes, and intraoperative results between the various treatment modalities in order to help guide surgical decision making.

Study Design & Methods
We performed a systematic review to identify studies including patients aged ≥ 55 with acetabular fractures. In accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, we searched PubMed, MEDLINE, Embase, and Web of Science electronic databases using a combination of controlled vocabulary and keywords (acetabulum or acetabular and fracture, fractures, or fractured) limited to the title or abstract fields.

Results
Thirty-eight studies including 3,928 patients with a mean age of 72.6 years and a mean follow up duration of 29.4 months met our eligibility criteria. The mean Harris Hip Score (HHS) for all patients was 81.9 and was highest in the nonoperative group (mean HHS=93.2). The pooled mortality rate of all patients was 21.6% (95% confidence interval [CI]=20.9-22.4%) with a mean time to mortality of 21.6 months, and the pooled non-fatal complication rate was 24.7% (95% CI=23.9-25.5%). Patients treated with ORIF had a significantly higher non-fatal complication rate than those treated with ORIF+THA, THA alone, CRPP, or nonoperative management (odds ratios [ORs]=1.87, 2.24, 2.15, and 4.48, respectively; $p<0.01$). Patients that underwent ORIF were significantly less likely to undergo subsequent THA than those treated with CRPP (OR=0.49, $p=0.002$) but were more likely to require THA than patients treated nonoperatively (OR=6.81, $p<0.001$).

Conclusions
Elderly patients with acetabular fractures suffer from high rates of mortality and complications. There was a high rate of conversion to THA in patients treated with internal or percutaneous fixation. When determining surgical treatment in this population, THA alone or concurrent with ORIF should be considered given the significantly lower rate of non-fatal complications and similar mortality rate. Nonoperative management remains a viable option and was associated with the lowest non-fatal complication rate.