Outcomes of Operative vs. Non-Operative Treatment of Geriatric Acetabular Fractures: Impact of Early Weight Bearing on Functional Recovery and Mortality

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INTRODUCTION: Optimal management of acetabulum fractures in the geriatric population remains controversial, with limited evidence guiding treatment decisions. The purpose of this study was to evaluate operative versus non-operative treatment and the effect of early weightbearing on functional outcomes and complications. We hypothesized that operative treatment of geriatric acetabulum fractures improves return to baseline mobility but increases risk compared to nonoperative treatment, and that earlier weight bearing enhances return to baseline mobility while decreasing mortality.

METHODS:

We conducted a retrospective review of patients ≥ 60 years old with acute isolated acetabulum fractures at a level 1 trauma center (2017-2024). Patients with concomitant lower extremity injuries or age < 60 were excluded. We collected demographic data, injury pattern details, and compared the outcomes of operative versus nonoperative fractures up to two years. A subgroup analysis on return to baseline mobility was conducted in patients with a minimum of 6 months of follow up. Among nonoperative patients, the impact of early advancement to weight bearing as tolerated (WBAT) on mobility and 1-year mortality was assessed.

RESULTS:

A total of 170 patients met inclusion criteria: 37 operative, 133 non-operative. Operative patients were significantly younger (71.13±8.3 vs. 77.17±10.1, p<0.001). There was no significant difference in return to baseline mobility by 2 years (50.00% vs. 54.16%, p=0.697), but operative patients took longer to recover (6.46 months vs 3.50 months, p=0.017) and carried higher rates of deep venous thrombosis (DVT) (p=0.013), cardiac complications (p=0.020), heterotopic ossification/avascular necrosis (AVN)/post-traumatic arthritis (p<0.001), and reoperation (p=0.013). There was no significant difference in mortality at any timepoint, pulmonary embolism (PE), pulmonary complications, delirium, and urinary tract infection (UTI). Among non-operative patients, earlier WBAT (as early as 2 weeks) was significantly associated with improved return to baseline mobility (p=0.043) and lower 1-year mortality at multiple timepoints beyond eight weeks (p<0.05).

DISCUSSION AND CONCLUSION: Non-operative management of geriatric acetabular fractures resulted in fewer complications and faster functional recovery. Earlier weight bearing in non-operative patients was associated with better mobility and reduced mortality. While these findings support the use of non-operative treatment strategies and early mobilization when clinically feasible, further research is needed to evaluate the outcomes in complex or displaced fracture patterns.

Table 1. Outcomes and complications of operative versus non-operative treatment of geriatric acetabulum fractures.

Outcome/Complication	Operative Patients (N=37)	Non-Operative Patients (N=133)	P-Value
Return to Baseline Mobility	50.00%	54.16%	0.697
Time to Return to Baseline Mobility (Months)	6.46±3.97	3.50±2.27	**0.017**
DVT	13.51%	2.26%	**0.013**
PE	2.70%	0.00%	0.218
Cardiac Complications	18.92%	5.26%	**0.020**
Pulmonary Complications	29.73%	19.55%	0.270
Delirium	8.11%	12.03%	0.768
UTI	10.81%	12.03%	1.000
In-Hospital Mortality	2.70%	3.76%	1.000
90-Day Readmission	21.62%	13.53%	0.342
30-Day Mortality	8.11%	7.52%	1.000
90-Day Mortality	8.11%	12.03%	0.768
1-Year Mortality	13.51%	21.05%	0.429
2-Year Mortality	19.23%	32.63%	0.185
Heterotopic Ossification/AVN/Post-Traumatic Arthritis	24.32%	2.26%	**<0.001**
Surgical Site Infection	5.41%	N/A	N/A
Reoperation/Revision	13.51%	2.26%	**0.013**

Figure 1

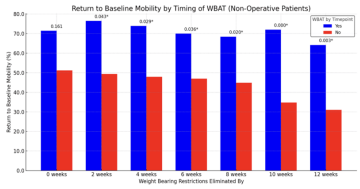

Figure 2