

Mortality of Nonoperatively Managed Geriatric Pelvic Ring Fractures

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INTRODUCTION: Geriatric pelvic ring fractures often result from low-energy trauma in the context of reduced bone density associated with osteoporosis or osteopenia. These injuries have a high mortality rate ranging from 12-39% one-year postinjury. Institutionally, the nonoperative treatment protocol for such injuries includes immediate weight-bearing as tolerated and physical therapy.

METHODS: Retrospective review of a single level 1 trauma center's nonoperatively managed geriatric ($65 \leq$ years old) pelvic ring fractures (CPT codes 27193 or 27197) from January 1st, 2014 to December 31st, 2019. Mortality data were obtained via chart review and the TriNetX US Collaborative Network database. The standardized mortality ratio (SMR) was calculated using a sex- and age-matched general population cohort as reference.

RESULTS: A total of 307 patients met inclusion criteria. 41 (13.4%) died within three months and 77 (25.1%) died within one year. Compared to an age- and sex-matched reference cohort, our nonoperatively managed geriatric pelvic ring fracture cohort showed the SMR Of 3.12 (95% confidence interval: [2.46, 3.85]) for the 1-year mortality. At 3 months, patients who died did not have different age (80.9 ± 8.6 vs. 81.0 ± 9.7 years; $p = 0.964$), body mass index (BMI) (24.3 ± 5.2 vs. 25.9 ± 5.9 ; $p = 0.062$), or sex ($p = 0.507$) but did have a higher Charlson Comorbidity Index (CCI) (5.4 ± 2.1 vs. 6.8 ± 2.8 ; $p < 0.001$). At 1 year, patients who died did not have different age (80.5 ± 8.5 vs. 82.4 ± 9.5 years; $p = 0.103$), BMI (24.5 ± 5.3 vs. 24.5 ± 5.5 ; $p = 0.922$), or sex ($p = 0.835$) but did have a higher CCI (5.2 ± 2.0 vs. 6.6 ± 2.6 ; $p < 0.001$).

DISCUSSION AND CONCLUSION: Nonoperatively managed geriatric pelvic ring fractures are associated with 3.12 times higher 1-year mortality rate than healthy individuals with the same age and sex. Patients with more comorbidities at the time of fracture have significantly higher 3-month and 1-year mortality rates.

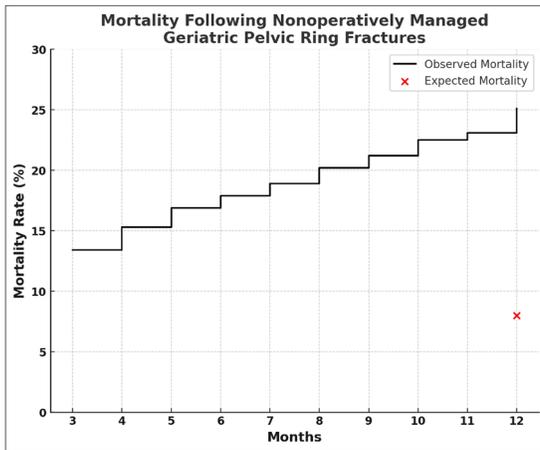


Figure 1. Monthly mortality rates following nonoperatively managed geriatric pelvic ring fractures. The solid black line indicates the observed mortality rate in our study cohort. The red X indicates the expected 1-year mortality rate of an age- and sex-matched general population.