Operative Treatment of Stress-Positive Lateral Compression Type 1 Pelvic Ring Injuries Results in Improved Odds of Independent Ambulation and Survival: A Multicenter Retrospective Propensity-Matched Analysis

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Purpose: We sought to compare outcomes of operative versus nonoperative management of stress-positive lateral compression type 1 (LC1) pelvic ring injuries.

Methods: A retrospective review of 8 Level I trauma centers was performed to identify patients with stress-positive (as determined by treating surgeon), minimally displaced LC1 injuries. Patients who underwent delayed operative fixation (>3 days from injury) were excluded. The medical record was reviewed to determine patient/fracture characteristics, hospital length of stay, discharge disposition, mortality, and independent ambulation at latest follow-up. Propensity-matched analysis was performed to control for differences between groups.

Results: 1089 patients with LC1 injuries were identified; 531 patients received stress imaging, 48.6% (n = 266) of whom demonstrated occult instability. After excluding stress-positive patients who received delayed treatment, 117 operative patients and 85 nonoperative patients remained. Operative patients were younger, more likely to be injured in low-energy falls, less likely to use assists for ambulation before the injury, and were more likely to have a complete sacral fracture ($P<0.05$). The 2 groups did not differ in gender, Charleston Comorbidity Index, Beckman fracture score, ISS, bilateral rami fractures, or 100% rami displacement ($P>0.05$). Before matching, operative patients were more likely to be ambulating independently at last follow-up (81% vs 61%, $P = 0.002$) and had a lower mortality rate (3% vs 15%, $P = 0.003$). After matching, 69 operative patients and 69 nonoperative patients remained for analysis. Post-match analysis demonstrated that operative patients were more likely to be independently ambulating at last follow-up (80% vs 62%, $P = 0.02$) and to have a lower mortality rate (1% vs 17%, $P = 0.002$). There was no observed difference in hospital length of stay, discharge to home vs facility, or feet ambulated with physical therapy between operative and nonoperative management after matching.

Conclusion: On propensity-matched analysis of stress-positive LC1 injuries across 8 Level I trauma centers, operative fixation was associated with a greater likelihood of ambulating without assists at last follow-up and a lower mortality rate.