

Can We Predict Early Negative Outcomes After Nonoperative Management of Stress-Positive Minimally Displaced Lateral Compression Type 1 Pelvic Ring Injuries?

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Purpose: Our objective was to compare patients who did and did not have early negative outcomes after nonoperative management of stress-positive minimally displaced lateral compression type 1 (LC1) pelvic ring injuries.

Methods: A retrospective review of a prospective registry at a single Level I trauma center was performed to identify patients with stress-positive (dynamic instability ≥ 1 cm on stress radiographs) LC1 injuries. Early negative outcomes included conversion to surgery after more than 3 days of nonoperative management, hospital readmission for pelvic pain, ≥ 1 -cm displacement on follow-up radiographs, and requiring a month or more of the following: care facility stay, opioid use, or wheelchair use.

Results: 24 patients were included. Median patient age was 65 years (interquartile range [IQR] 42 to 75), 71% were female ($n = 17$), and ground level falls caused 42% of injuries ($n = 10$). There were 25 early negative outcomes experienced by 67% of patients ($n = 16$), including conversion to surgery (25%, $n = 6$), requiring opioids for a month or more (25%, $n = 6$), ≥ 1 -cm pelvic fracture displacement on follow-up radiographs (25%, $n = 6$), requiring a care facility for a month or more (17%, $n = 4$), requiring a wheelchair for a month or more (8%, $n = 2$), and readmission to the hospital for pelvic pain (4%, $n = 1$). There was no observed association between negative outcomes and age, gender, low-energy injuries, sacral fracture completeness/comminution, bilateral rami fractures, rami comminution, or displaced distal rami fractures. A receiver operating characteristic curve determined that >16 mm of dynamic displacement would maximize the sensitivity (SN) and specificity (SP) for negative outcomes. Utilizing this threshold, 87% of patients with >16 mm of dynamic displacement had a negative outcome compared to 33% of patients with 16 mm or less of dynamic displacement ($P = 0.02$). ≥ 1 -cm pelvic fracture displacement on follow-up radiographs was also not associated with any of the above variables or dynamic displacement >16 mm ($P > 0.1$).

Conclusion: Negative outcomes after nonoperative management of stress-positive minimally displaced lateral compression type 1 injuries were more likely in patients with >16 mm of dynamic displacement on stress radiographs.