

Differences in Length of Stay and Discharge Patterns Among Young-Burgess Pelvic Ring Injury Patterns

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Disclosures: None

ABSTRACT BODY:

Introduction: Pelvic ring injuries are high-energy mechanism disruptions of the pelvis with significant associated morbidity and mortality. These injuries not only pose a significant clinical challenge but also result in substantial healthcare costs. As healthcare systems grapple with resource allocation, evaluating patient outcomes such as Length of Stay (LOS) and discharge location is crucial for efficient care delivery. This study aimed to identify risk factors influencing LOS and discharge disposition in pelvic ring injury patients, improving resource allocation, and improving patient counseling. We hypothesized that more severe pelvic ring injury patients, graded based on the Young-Burgess Classification¹, would have longer LOS and higher rate of disposition to skilled nursing facilities.

Methods: This study was approved by the University of Rochester Medical Center's Institutional Review Board. This was a retrospective observational study, spanning from 2011 to 2021, examining electronic health records from a tertiary level I trauma center. Patients with surgical pelvic ring injuries were included. Variables of interest included age, income, insurance status, obesity, race, gender, mechanism of injury, smoking history, comorbidities, Injury Severity Score (ISS), and Young Burgess classification. Statistical analysis involved descriptive statistics, Chi-square tests, ANOVA, and multivariable regression analysis.

Results: The study included 284 patients with an average age of 45.4 ± 16.9 years. The majority were male (66.2%) and white (81.35%). Patients who had sustained high-energy trauma comprised 93.0% of our cohort, with an average ISS of 25.6. A significant difference in LOS was observed based upon Young Burgess classifications, with LC III injuries having the longest LOS (27.1 ± 25.0 days). However, there was no significant difference in discharge disposition among injury patterns. Regression analysis revealed that LC III injuries ($p = 0.005$), active smoking ($p = 0.04$), and higher ISS scores ($p = 0.001$) were associated with longer LOS. Older age ($p = 0.001$), higher ISS scores ($p = 0.001$), and a Charlson Comorbidity Index of 3 or more ($p = 0.04$) increased the odds of discharge to a skilled nursing facility.

Discussion: This study identifies critical factors influencing LOS and discharge disposition in pelvic ring injury patients. We identified significant differences in length of stay dependent upon pelvic ring injury pattern. Interestingly, LCIII pelvic ring injury patients were found to have longest length of stay, suggesting that these patients may have associated injuries such as thoracic and central nervous system injuries, resulting in prolonged length of stay.² Alternatively, these patients may have more restrictive post-operative weight bearing restrictions, slowing their recovery. These are additional areas of future inquiry. Despite this difference, there was no difference in rate of discharge to skilled nursing facilities. Understanding these factors can aid in patient counseling and resource optimization, offering valuable insights for healthcare systems facing escalating costs and resource constraints.

SIGNIFICANCE/CLINICAL RELEVANCE: No previous studies have defined length of stay and discharge disposition amongst patients who sustain pelvic ring injuries. Our study provides a valuable patient counseling and hospital course anticipation tool for all who help to manage polytraumatized patients with pelvic ring injuries.

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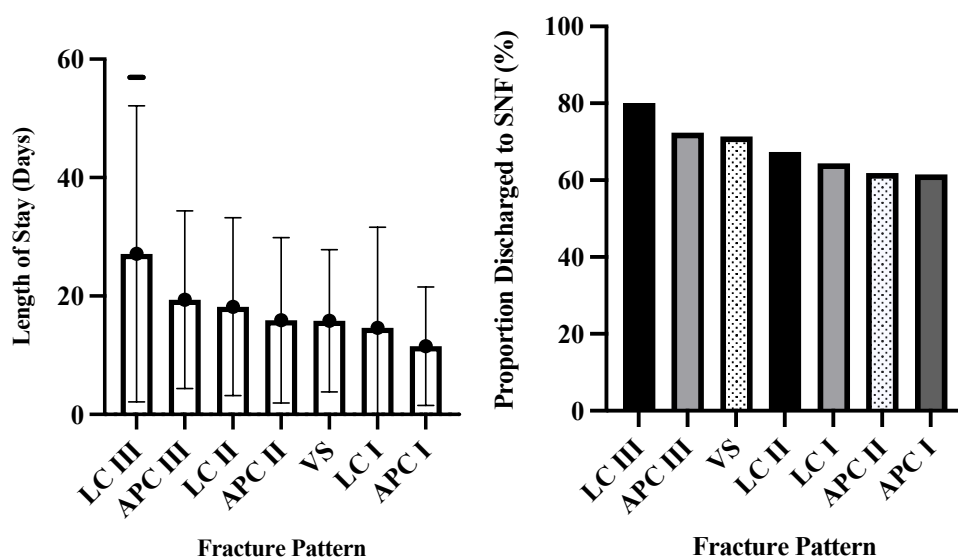


Figure 1: length of stay by fracture pattern: On ANOVA analysis, patients with LC III injury experienced the longest average LOS ($27.1 \pm SD 25$), followed by APC III ($19.4 \pm SD 15$), LC II ($18.2 \pm SD 15$), APC II ($15.9 \pm SD 14$), VS ($15.8 \pm SD 12$), LC I ($14.6 \pm SD 17$), and finally APC I ($11.5 \pm SD 10$) $p=0.03$
Figure 2: SNF Placement by fracture pattern: No significant difference observed among injury patterns in discharge disposition to SNF, with percentages of 80.0% for LC III, 72.4% for APC III, 71.4% for VS, 67.4% for LC II, 64.4% for LC I, 61.9% for APC II and 61.5% for APC I $p=0.72$