

## Does Surgical Stabilization of Pelvic Ring Fractures Positively Impact Patients' Pain, Narcotic Requirement, and Mobilization?

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**Purpose:** There is continued debate over the role for surgical treatment in certain types of lateral compression (Young-Burgess, LC; OTA 61-B2) pelvic ring injuries. Some surgeons argue that operative stabilization limits pain and eases mobilization but data evaluating against a control group are not yet present. Our hypothesis is that patient-reported pain scores, narcotic use, and time to mobilization would all be lower in patients with LC1 and LC2 fractures treated operatively as compared to those treated nonoperatively.

**Methods:** We performed a retrospective review of consecutive LC1 and LC2 fractures treated definitively at one institution from 2007 to 2013. All operative cases, all nonoperative LC2, and all nonoperative LC1 fractures with complete sacral injury were included. The operative and nonoperative groups were matched for fracture type. In order to account for differences between patients treated operatively and nonoperatively, we used propensity-modeling techniques incorporating all treatment predictors. Propensity scores demonstrated good overlap, and were used as part of multiple variable regression models to account for selection bias between the operative and non-operative groups. Patient-reported pain scores and narcotic administration were tracked during the first 24 hours of hospitalization, at 48 hours after intervention, and in the 24 hours prior to discharge. Time from intervention to therapist-directed mobilization out of bed was recorded. 115 patients in the LC1 group (81 nonoperative, 34 operative) and 89 patients in the LC2 group (58 nonoperative, 31 operative) met inclusion criteria.

**Results:** Of the 12 analyses conducted (6 outcomes each for LC1 and LC2), 9 showed no significant difference, including days to mobilization, length of stay, pain at 48 hours and morphine equivalents at 24 hours. The pain scores were higher in the operative LC1 group at discharge ( $P = 0.03$ ) as were the morphine requirements at 48 hours ( $P = 0.008$ ). The only variable that favored operative treatment was morphine requirement at the 48-hour mark ( $P = 0.04$ ) in the LC2 fractures.

**Conclusion:** We only found 1 of 12 analyses (narcotic requirement at 48 hours in the LC2 group) favored surgical treatment, while 3 analyses favored nonoperative treatment. The majority of analyses (9/12) showed no difference between groups. Fractures with more displacement, and perhaps more likelihood of having pain, are found more commonly in the operative groups. Therefore, even with propensity matching, we might still expect outcomes to appear to be in favor of the nonoperative group, but this was not generally the case. For this reason it remains unclear whether surgical stabilization of certain LC1 and LC2 pelvic fractures positively impacts patients' pain, narcotic requirement, and time to mobilization, although our data cast some doubt on the validity of this claim.

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