

## Immediate Weight Bearing as Tolerated Has Improved Outcomes Compared to Non-Weight Bearing After Surgical Stabilization of Midshaft Clavicle Fractures in Polytrauma Patients

Brian P. Cunningham, MD<sup>1</sup>; Gilbert R. Ortega, MD<sup>2</sup>; Anthony S. Rhorer, MD<sup>1</sup>; Brian Miller, MD<sup>1</sup>; Hrayr Basmajian, MD<sup>3</sup>; Ryan McLemore, PhD<sup>1</sup>; Kelly A. Jackson, NP-C<sup>4</sup>

<sup>1</sup>Banner Good Samaritan, Phoenix, Arizona, USA;

<sup>2</sup>Sonoran Orthopedic Trauma Surgeons, Scottsdale, Arizona, USA;

<sup>3</sup>Loma Linda University Medical Center, Loma Linda, California, USA;

<sup>4</sup>Scottsdale Healthcare, Scottsdale, Arizona, USA

**Background/Purpose:** Midshaft clavicle fractures are common injuries and recent studies have demonstrated the clinical benefit of surgical management. Weight bearing (WB) status after open reduction and internal fixation (ORIF) has been primarily as non-weight bearing (NWB) in the literature; however, in the polytrauma patient population a clear benefit exists to early ambulation with the use of an assistive device. Previous reports have illustrated that crutch weight bearing following surgical stabilization of midshaft humerus fractures resulted in high union rates and low complications. The literature does not have any studies evaluating early crutch weight bearing following ORIF of midshaft clavicle fractures. Our hypothesis was that immediate postoperative weight bearing as tolerated (WBAT) for midshaft clavicle fracture would result in decrease length of stay and decreased complication rate in polytrauma patients compared to operative management with NWB.

**Methods:** After IRB approval a retrospective cohort study was conducted from August 2007 to November 2013. Inclusion criteria were skeletally mature patients with a midshaft clavicle fracture and a lower extremity injury that required non-weight bearing (long bone, periarticular, acetabular, or pelvic fracture). Exclusion criteria were open fracture, presentation with Glasgow Coma Scale below 8, and/or non-weight bearing upper extremity injury. 24 patients met the inclusion criteria; 9 patients underwent surgical stabilization with immediate weight bearing using crutches and 15 patients underwent surgical stabilization with no weight bearing, but could complete active and passive range of motion exercises. These two cohorts were compared using Mann-Whitney for statistical significance. We evaluated data regarding age, sex, mechanism of injury, and revised trauma score. We compared data collected on length of stay (LOS), maximum mobility level at discharge, and LOS postoperatively.

**Results:** The mean patient age was 41.4 years (range, 19-64) and 45.6 years (range, 22-63) in the WB and NWB groups, respectively. Revised trauma score was similar in both groups (11.2 WB vs. 11.3 NWB). The WB group had decreased LOS (11.7 vs. 17.4 days,  $P = 0.056$ ). The WB group had a significant improvement in physical therapy score (4.3 vs 2.8,  $P = 0.005$ ), and subsequently discharged faster postoperatively than the NWB group (6.9 vs 12.9 days,  $P = 0.015$ ). The WB group also had a decreased rate of deep venous thrombosis (DVT) compared to the NWB group (0 vs. 2). There was no statistical difference in the union rates between groups.

**Conclusion:** This study demonstrates that immediate postoperative crutch weight bearing provides improved participation in physical therapy, decreased LOS, and potentially decreased

rate of DVT. Our data suggest also that early operative intervention for midshaft clavicle fractures with WBAT protocol produced the shortest LOS in a population of polytrauma patients. We plan to continue studying the effect of early WBAT after ORIF of midshaft clavicle fractures and the effect on quality of life and patient-centric outcomes measures.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an “off label” use). For full information, refer to page 600.