

## Recognizing Intimate Partner Violence: Never Neglect a “Night-Stick” Fracture

*Paul Tornetta MD; David Sing MD; George S.M. Dyer MD; Mitchel B Harris MD; Rahul Gujrathi MD; Tianxi Cai ScD; Steven Seltzer MD; Giles Boland MD; Bharti Khurana MD*

Boston University Medical Center, Boston, MA, United States

**Purpose:** Intimate partner violence (IPV) against women may be first seen by orthopaedic surgeons managing fractures. Recognition of IPV remains difficult, as the nature and pattern of IPV-related musculoskeletal injuries are not well described. The purpose of this study is to characterize IPV in the setting of isolated ulnar fractures or “night-stick” fractures, with particular attention to the displacement of the fracture.

**Methods:** Electronic medical records from 6 hospitals were queried to identify a cohort of female patients aged 18-50 years sustaining night-stick fractures from 2005 to 2019. Emergency department (ED) and clinic notes and radiographs were reviewed to collect patient demographics, known IPV risk factors, associated injuries, fracture pattern, and whether IPV screening was performed. Patients were stratified into 4 groups based on self-reporting and/or injury documentation as reported by emergency medical services: confirmed IPV, suspected IPV, suspected unrelated to IPV, and confirmed unrelated to IPV. Fractures were classified as minimally displaced if they had <50% translation and <10° angulation. The ulna was divided into fourths related to location with olecranon fractures excluded. Comparative statistics were performed with and without suspected cases to identify characteristics unique to IPV.

**Results:** 51 patients with mean age  $31 \pm 9$  years were identified (IPV: 10 confirmed, 7 suspected, 6 suspected unrelated, 28 confirmed unrelated). Patient language, race, ZIP code, wealth index, marital status, religion, alcohol/IV drug abuse, psychiatric history, and fracture pattern or location were not associated with IPV with or without suspected cases. Comparative analysis with and without suspected cases demonstrated IPV to be associated with minimally displaced fractures (94% vs 44%;  $P = 0.002$  and 90% vs 46%;  $P = 0.025$ ). Confirmed cases were also associated with homelessness (50.0% vs 0%;  $P < 0.001$ ), and number of documented ED visits attributable to musculoskeletal injury (average  $4.7 \pm 3.8$  vs  $1.0 \pm 0.2$ ;  $P < 0.001$ ). Formal documentation of IPV evaluation or screening was completed in only 41.2% of confirmed/suspected IPV patients and in 17.6% of confirmed/suspected unrelated to IPV patients.

**Conclusion:** Up to one-third of adult women sustaining night-stick fractures may be caused by IPV, yet screening for IPV at initial injury remains uncommon. Screening for IPV is lacking as it was instituted in only 41% of suspected and confirmed cases. We recommend that orthopaedic surgeons maintain a high degree of suspicion of IPV when treating night-stick fractures, particularly if they are minimally displaced. A chart review for the number of ED visits for musculoskeletal complaints and the lack of domicile may also help in identifying potential victims. Orthopaedic surgeons are in a position to help patients get help in this dangerous circumstance.