

The Role of Depression in Outcomes of Low-Energy Distal Radius Fractures in Patients Over 55 Years Old

Jane Yeoh, BSc, MD; Jeffrey Pike, MD, MPH, FRCSC; Henry Broekhuysse, MD, FRCSC; Peter O'Brien, MD, FRCSC; Kelly A Lefaivre, BScH, MD, MSc, FRCSC; Division of Orthopaedic Trauma, Department of Orthopaedic Surgery, University of British Columbia, Vancouver, British Columbia, Canada

Purpose: This study aims to determine the effect of depression on functional outcome, complications, and the occurrence of complex regional pain syndrome (CRPS) in patients over 55 years old with isolated distal radius fractures.

Methods: Data were prospectively collected in patients over 55 with acute distal radius fractures in one Level I trauma center. Patient and treatment characteristics collected include age, gender, medical comorbidities, education, smoking, and operative versus nonoperative treatment. General and limb-specific health status was measured at baseline, 3 months, and 1 year using the Short Form-36 (SF-36), and Disabilities of the Arm, Shoulder and Hand (DASH) score. Depression was measured using the Centre of Epidemiologic Studies Depression Scale (CES-D) at the same time intervals. All complications, and specifically symptoms consistent with CRPS were recorded. Univariate analysis was utilized to examine the relationship between depression and complications, and between depression and outcomes. Linear regression models were utilized to assess the effect of depression and other factors on functional outcomes.

Results: 228 patients were enrolled, 204 women and 24 men. The mean age was 67 ± 0.59 years. 120 distal radius fractures were treated non-operatively and 108 treated operatively. A large portion of patients were depressed at baseline (24.8%), and this rate increased 3 months after injury (32.1%), and returned close to baseline 1 year after injury (26.3%). 32 patients reported some type of complication (14.0%), and 22 of these patients had symptoms consistent with CRPS (10.3%). Univariate analysis showed a significant association between depression at baseline ($P = 0.0732$) and 3 months ($P = 0.0017$) and the occurrence of CRPS. This relationship did not exist with complications at baseline, but did at 3 months ($P = 0.0211$). There was a statistically significant association between baseline depression and worse 1-year SF-36 scores. Patients with baseline depression had worse absolute 1-year DASH scores of 20.14 ± 2.32 compared to 11.60 ± 1.33 in nondepressed patients ($P = 0.0031$), and worse change in DASH score between baseline and 1 year ($P = 0.0229$). Using linear regression, baseline depression is the strongest predictor of worse 1-year DASH scores (3.720, $P = 0.0078$), and more change in DASH score over the first year (2.896, $P = 0.0255$) controlling for gender, age, treatment, comorbidity, and complications.

Conclusion: A significant portion of patients over 55 with distal radius fracture present with depression, and experience new depression during treatment. In this study, rates of CRPS complicating recovery from distal radius fracture were consistent with previous literature (10.3%). We found an association between CRPS and baseline depression as well as depression at 3 months after injury. There is no

- 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.

association between baseline depression and complications overall, yet there is an association between 3-month depression and complications. Baseline depression predicts poorer general functional and limb-specific functional outcome at 1 year. Depression is the most important predictor of DASH at 1 year, and change in DASH over treatment, even after controlling for other important predictors of upper extremity function.