

The Effect of Underlying Psychiatric Condition Development of Complex Regional Pain Syndrome after Traumatic Fractures in Adults

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INTRODUCTION: Complex regional pain syndrome is a debilitating condition that occurs in roughly 7% of patients sustaining fractures. The etiology and risk factors that impact this syndrome are poorly understood, and appear to be impacted by a number of factors. This study aims to determine the relationship between the presence of a preexisting psychiatric condition and the development of neuropathic pain in orthopaedic patients.

METHODS: A large, representative sample of patients that sustained a fracture between January 1, 2003 and December 31, 2022 were identified to perform this retrospective cohort study. Patients were sorted by the presence of a preexisting psychiatric comorbidity, and demographic information including gender, racial identity, and BMI were collected. Patients were then matched by demographic variables. Patients were followed for 2 years to identify the development of complex regional pain syndrome and nerve palsies in the fractured limb. Statistical analysis was performed to determine risk ratios and hazard ratios for the development of complex regional pain syndrome.

RESULTS: We identified 2,605,540 patients, of which 317,742 had a preexisting psychiatric comorbidity and 1,891,798 patients did not have a preexisting psychiatric comorbidity. After matching, 713,742 patients were included in each cohort with a mean age of 54.3 years-old in both groups, as well as a mean BMI of 28.7 in the psychiatric condition group, and a mean BMI of 27.8 in the non-psychiatric condition group. Patients with a psychiatric comorbidity had a 2.264 times greater risk of developing complex regional pain syndrome ($p < 0.0001$) than patients without a psychiatric comorbidity. Additionally, there was a hazard ratio of 1.937 ($p < 0.0001$) to develop complex regional pain syndrome when comparing patients with and without a psychiatric comorbidity that sustained a fracture.

DISCUSSION AND CONCLUSION: Our study found that patients with a preexisting psychiatric condition were more than twice as likely to develop complex regional pain syndrome when compared to patients without psychiatric comorbidities after sustaining a fracture. It is critical that physicians are aware of the interplay of psychiatric conditions and the development of significant pain complications following fracture to mitigate the effects of complex regional pain syndrome in orthopaedic patients.

