Alcohol Use Disorder Associated with Heterotopic Ossification After Acetabular Surgery

Jesse Seilern Und Aspang, Ryan Sason Zamanzadeh[1], Janice Bonsu[2], Helyn Grissom, Anna P Meyer[3], Michael A. Maceroli, Adam Boissonneault[4]

[1]Department of Orthopaedics, Emory University School of Medicine, [2]Dept of Ortho, [3]Emory University, [4]University of Maryland Baltimore, Shock Trauma Cen

INTRODUCTION:

Nearly half of all trauma patients are injured while under the influence of alcohol. Alcohol use disorder (AUD) often confounds injury management, and the altered metabolism of chronic AUD may pose additional risks among patients with complex orthopaedic injuries. Heterotopic ossification (HO) is a well-documented complication after operative acetabular fracture treatment oftentimes resulting in severe pain and impaired hip function. We aimed to evaluate the association between AUD and HO in patients treated with surgical fixation of acetabular fractures.

METHODS: We report on 313 consecutive patients that presented to a single Level-I trauma center and underwent open reduction and internal fixation of an acetabular fracture through an isolated posterior (Kocher-Langenbeck) approach. The primary outcome measure was HO formation defined by the modified Brooker classification (Class I-IV). Pearson's chi-squared test and a logistic regression analysis incorporating previously established risk factors for HO were performed to evaluate the association between AUD and HO.

RESULTS: HO developed in 112 patients (35.8%). More than half (53.4%) of patients with AUD developed HO compared to 34.1% of patients without AUD (p=0.045). When controlled for injury severity score ≥17 and associated pattern Letournel classification, patients with AUD had an overall increased odds of developing HO (OR 2.6, CI 1.1–6.1; p=0.026). After incorporating HO prophylaxis in the regression model, patients with AUD who did not receive HO prophylaxis had a 10x higher odds of HO formation (OR 10.2 CI 1.3–78.4, p=0.026) than those who received either indomethacin or XRT.

DISCUSSION AND CONCLUSION: These findings demonstrate a significant association between AUD and HO formation. As trauma management continues to envelope patient's individual bio-social profiles, this study indicates that patients with AUD may benefit from HO prophylaxis. Future prospective studies are encouraged to document the clinical impact of incorporating AUD into HO risk-mitigation protocols.