The Morbidity of Alcohol Withdrawal Among Orthopaedic Trauma Patients

Gavin Hart, MD*; Rachel Seymour, PhD; Michael J. Bosse, MD;*
Carolinas Medical Center, Charlotte, North Carolina, USA

Purpose: The goals of this study were to examine the incidence of alcohol withdrawal symptoms (AWS) and delirium tremens (DTs) among trauma patients with alcohol-associated diagnoses treated symptomatically with a benzodiazepine-based regimen at our institution. We sought to quantify their hospital length of stay (LOS), ICU LOS, and overall cost of hospitalization. We hypothesized that trauma patients with and without orthopaedic injuries at our institution develop AWS and DTs at a higher rate than the national average.

Methods: After IRB approval, we retrospectively reviewed our Level I trauma center's trauma database for trauma patients over the age of 21 who presented with injury or trauma between January 1, 2008 and December 31, 2011 and were discharged with a secondary diagnosis of alcohol abuse, alcohol withdrawal/delirium, and/or alcoholic psychosis. Patients were excluded if they presented without a traumatic injury. Investigators recorded demographics (age, sex, ethnicity), mechanism of injury, primary and secondary diagnoses, hospital LOS, ICU LOS, hospital disposition, implementation of CMC (Carolinas Medical Center) Adult Alcohol Withdrawal Protocol (AAWP), the development of AWS, and the development of DTs.

Results: We retrospectively reviewed the charts of 921 patients (770 males, 151 females) with an average age of 44.8 years. The overall implementation rate of the AAWP was 44.7%. Of the patients placed on the AAWP, 167 (40.5%) of them developed AWS and 38 (9.2%) developed DTs. Of patients not on the AAWP, 25 (4.9%) developed withdrawal symptoms and 13 (2.5%) developed DTs. Overall, patients who developed DTs were significantly older than patients who did not (55.4 years vs. 44.1 years, $P < 0.0001$). Furthermore, 24 (47%) of the patients who developed DTs required admission to the ICU for treatment of their withdrawal-related symptoms with an average ICU LOS of 8.09 days. Average hospital LOS was significantly longer for patients who developed DTs than for those who did not (15.5 days vs. 7.8 days, $P < 0.0001$).

Conclusion: Even when placed on the AAWP, a relatively high number of trauma patients with and without orthopaedic injuries developed DTs at a rate almost double that of the national average of approximately 5%. Almost half of the patients who developed DTs required an ICU stay unrelated to their traumatic injuries. Furthermore, patients who developed DTs required a hospital LOS twice that of the rest of the patient cohort. The questionable efficacy of the AAWP at our institution and the increased cost associated with the development of DTs has led the authors to advocate for an alcoholic beverage with meals regimen to combat AWS and DTs in high-risk patients.

- 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.