Factors related to alcohol withdrawal syndrome in extremity trauma patients

Benjamin Lehrman, MD; Saskya Byerly, MD, Emily Lenart, DO, Isaac Howley, MD, Dina Filiberto, MD; Andrew Kerwin, MD

Objective

In the setting of a hospitalization, patients with alcohol dependence may develop Alcohol Withdrawal Syndrome (AWS), due to the acute reduction in alcohol consumption. There is a paucity of research assessing the factors related to the development of AWS in trauma patients, as well as the role of psychiatric illness as a potential effect modifier of substance abuse and our project aims to quantify these risk factors and their corresponding effect in a national trauma database.

Methods

This is a multicenter retrospective analysis of all patients within the Trauma Quality Improvement Program (TQIP) database with extremity trauma in 2019. Patients with and without AWS were assessed. Regression analysis was conducted to determine predictors for AWS, tracheostomy, and length of stay (LOS). Other primary outcomes included mortality, unplanned intubation, tracheostomy creation, length of stay, ventilator days, development of ventilator associated pneumonia (VAP) and development of acute respiratory distress syndrome (ARDS).

Results

431,406 adult patients with isolated extremity trauma were identified. 10% of patients had a mental health disorder, 3% had alcohol use disorder (AUD) and 0.34% of patients had AWS. Most patients were male (51%) with a median age and injury severity score (ISS) of 51 and 6. As compared to patients without AWS, patients with AWS were more likely to have unplanned intubations (6% vs 0.37%, $p < 0.0001$), require a tracheostomy (1.4% vs. 0.15%, $p < 0.0001$), develop VAP (0.7% vs. 0.03%, $p < 0.001$) or ARDS (0.5% vs 0.05%, $p < 0.001$), be discharged to a psychiatric facility (1.7% vs 0.8%, $p < 0.0001$), have a longer LOS (9 days IQR:(6-14) vs 4 days (2-4), $p < 0.001$) and had a higher mortality (1.7% vs 0.8% $p = 0.0001$). On logistic regression, predictors for AWS included ISS (AOR:1.04), male gender (1.75), unplanned intubation (10.12), and pre-existing cirrhosis (2.34). The presence of a psychiatric diagnosis was an effect modifier of AUD. The odds of AWS for patients with AUD are 52 times higher compared to those without an AUD. Alternatively, patients diagnosed with a mental health disorder were 26 times more likely to have AWS if already diagnosed with AUD compared to those without AUD.

Conclusion

AWS is associated with morbidity and mortality in trauma patients with extremity fractures. Both a history of mental health disorders and AUD were associated with the development of AWS; however, AUD alone was found to have dramatic effects on the risk of developing AWS during hospitalization. Altogether, AWS carries a great weight on the healthcare system and warrants further research.