

Background

- Up to 50% of trauma patients present with acute alcohol intoxication but less than 1% develop Alcohol Withdrawal Syndrome (AWS).
- AWS is a clinical diagnosis defined by patients exhibiting a variety of symptoms including: diaphoresis, insomnia, tremors to seizures, hallucination and altered state of consciousness
- Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar) is a 10-item, symptom triggered protocol commonly used to treat AWS; at our institution a score > 8 warrants treatment
- Each item is scored independently and the summation correlates with a degree of severity, prompting specific management, such as administration of benzodiazepines

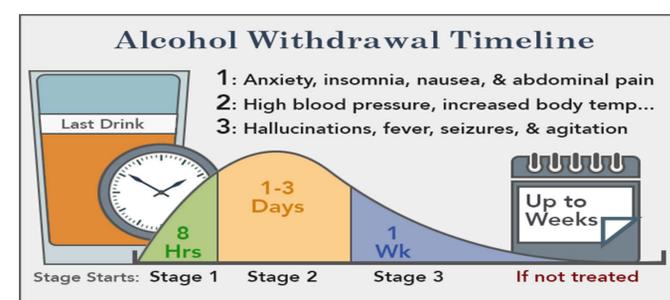


Figure 1. Depiction of the timeline of AWS symptom development

Purpose

To compare utilization of CIWA-Ar protocol in two hospitalized populations, those admitted to an internal medicine service or a trauma/orthopedic service, at a large, Level I designated, academic trauma center

Methods

Design, Sample, Setting

- Retrospective chart review of patients receiving AWS/CIWA-Ar protocol at UK HealthCare between January 1, 2016 and December 31, 2016
- N = 479 patients
 - Internal Medicine : n = 361
 - Trauma/Orthopedics: n = 118

Measures

- Demographic variables : age, gender, ethnicity
- Clinical variables: medical history, home medication use, drug administration totals, length of stay, hospital complications, CIWA-Ar scores

Procedure

- All data were extracted via UK HealthCare Trauma Database and the UK Center for Health Services Research
- Inclusion criteria: 18 years of age or older, admitted to Internal Medicine or Trauma/Orthopedic services, non-ICU level of care, and activated Alcohol Withdrawal Protocol order
- Exclusion Criteria: GCS Verbal score less than 4

Analysis

- Patients were grouped into an Internal Medicine or Trauma/Orthopedic cohort
- Wilcoxon Rank Sums test and non-parametric median two-sample test were used to compare continuous variables
- Chi-square analysis was used to compare categorical variables
- Linear regression determined the predictive power of CIWA score for log-transformed total benzodiazepine dose, while controlling for gender, seizure history, cirrhosis, and chronic kidney disease
- A priori significance level $p \leq 0.05$

Results

	Trauma (n = 118)	Medicine (n = 361)	P-value
Age, years	50.4	49.9	0.533
Gender, male, n (%)	96 (81.4%)	261 (72.3%)	0.050
Admission Glasgow Coma Scale score	14.1	14.6	0.050
Seizure disorder, n (%)	8 (6.8%)	76 (21.1%)	0.001
Cirrhosis, n (%)	2 (1.7%)	19 (5.3%)	0.100
Chronic kidney disease, n (%)	1 (0.8%)	21 (5.8%)	0.025
Chronic benzodiazepine use, n (%)	25 (21.2%)	94 (26.0%)	0.290
Chronic opioid use, n (%)	35 (29.7%)	119 (33.0%)	0.505
Chronic opioid & benzodiazepine use, n (%)	16 (13.6%)	49 (13.6%)	0.997
Cumulative benzodiazepine dose, MDE	32.4	69.9	0.006
Patients receiving no benzodiazepine, n (%)	51 (43.2%)	115 (31.9%)	0.032
CIWA-Ar score > 8, % of total	9.7	19.8	<0.001
Cumulative opioid dose, MME	140.9	69.0	<0.001
In-hospital mortality, n (%)	2 (1.7%)	17 (4.7%)	0.145
Median hospital length of stay, days	3.9	4.6	0.213
Patients with respiratory depression, n (%)	10 (8.5%)	44 (12.2%)	0.268
Patients requiring naloxone, n (%)	0 (0.0%)	6 (1.7%)	0.159
Patients requiring rapid response activation, n (%)	19 (16.1%)	100 (27.7%)	0.011
Patients requiring level of care transfer, n (%)	4 (3.4%)	42 (11.6%)	0.008

Table 1. Demographic and clinical characteristics of the sample

Parameter	Estimate	SE	t-value	P-value
Trauma group	-.023	0.19	-1.18	0.24
Seizure history	0.61	0.18	3.31	0.001
Chronic kidney disease	-0.29	0.33	-0.89	0.38
Cirrhosis	-0.57	0.34	-1.71	0.09
Gender (male)	0.33	0.16	2.06	0.04
CIWA -Ar > 8	0.05	0.003	16.31	<0.001
CIWA -Ar > 8 * Trauma	0.02	0.001	2.66	0.008

Table 2. Prediction of log-transformed total benzodiazepine dose

Conclusions

- Patients in the trauma cohort received significantly less benzodiazepine to treat AWS when assessed by CIWA-Ar, and had fewer complications
- Trauma patients experienced less severe withdrawal and had fewer comorbidities than medicine patients.
- Trauma patients received significantly more opioid, which can increase risk of overdose in combination with benzodiazepines.³
- Linear regression showed a CIWA-Ar score > 8 is associated with higher total benzodiazepine dose for all patients; however, an increase in CIWA score had a more positive association with log-transformed total benzodiazepine dose for the trauma group than for the medicine group