Evaluation of a CIWA-based Alcohol Withdrawal Protocol & Pre-Printed Order in Adults ≥ 70 Years Old at Vancouver General Hospital

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### Background
- Elderly (≥ 65 years) at high risk for AWS associated complications.
- BDZ are the drug class of choice for management of AWS.
- In March 2010, a pre-printed order & protocol was implemented on the VGH Internal Medicine units for adults ≥ 70 years.
- The protocol consists of a symptom-triggered administration of low dose lorazepam based on the CIWA-Ar scale.

### Study Objectives
- To evaluate the severity and duration of alcohol withdrawal in the pre versus post protocol implementation groups
  - **Primary outcomes:** BDZ treatment duration & total dose
  - **Secondary outcomes:** severe withdrawal complications, serious BDZ adverse effects, and use of adjunctive therapy.
- To evaluate quality assurance outcomes to determine areas for potential improvement.

### Methods
- **Design:** Retrospective chart review & nursing survey to qualitatively summarize their experience with protocol
- **Population:** Pts ≥ 70 yrs admitted to the internal medicine units with a diagnosis of alcohol withdrawal
- **Pt identification:** AWS related diagnosis codes and pharmacy computer system search for thiamine IV and BDZ codes
- **Pre-protocol:** Mar 2008 – Feb 2010
- **Post-protocol:** Mar 2010-2012

### Inclusion Criteria
- Pt ≥ 70 years old
- Pre-protocol group: admitted to hospital from ER
- Post-protocol group: AW protocol order
- Presence of diagnosis of AW documented in the chart

### Exclusion Criteria
- Active opiate, BDZ, or stimulant withdrawal
- Concurrent psych/seizure disorder unrelated to AWS
- Regular BDZ use (other than for sleep) within 30 days of admission
- Severe liver disease (MELD score >9 or liver cancer)
- Left against medical advice/moved to different ward where protocol not available

### Results

#### Table 1: Patient Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pre-Protocol (N=33)</th>
<th>Post-Protocol (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age ± (STD)</td>
<td>76.9 ± (5.4)</td>
<td>77.7 ± (5.22)</td>
</tr>
<tr>
<td>Male (%)</td>
<td>85</td>
<td>80</td>
</tr>
<tr>
<td>Nicotine or marijuana addiction (%)</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>Prior AWS hospital admission (%)</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Previous withdrawal seizure (%)</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Alcoholism as primary diagnosis (%)</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Alcoholism as secondary diagnosis (%)</td>
<td>82</td>
<td>80</td>
</tr>
<tr>
<td>Duration of hospital stay (SD)</td>
<td>249 (±34.9)</td>
<td>343 (±45.8)</td>
</tr>
</tbody>
</table>

#### Table 2: Details of the specific trial endpoint, in a number of formats.

**Table 3: Quality Assurance Outcomes (N=30)**

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Pre-Protocol</th>
<th>Post-Protocol</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median time from AWS diagnosis to AW protocol hrs (IQR)</td>
<td>7.6 (3.2-20.4)</td>
<td>6.1 (2.5-25.3)</td>
<td>0.051</td>
</tr>
<tr>
<td>Median time from AWS diagnosis to first CIWA-Ar score &lt; 10 (SD)</td>
<td>3.4 (±6.1)</td>
<td>3.8 (±5.9)</td>
<td></td>
</tr>
<tr>
<td>CIWA-Ar monitoring done as per protocol– no. (%)</td>
<td>12 (40)</td>
<td>1 (3.3)</td>
<td></td>
</tr>
</tbody>
</table>

#### Conclusions
- Implementation of AWP showed a statistically significant ↓ in the total duration of BDZ use, cumulative BDZ dose, & use of adjunctive meds in the treatment of AWS.
- Expansion of protocol & order set in the ER would improve diagnosis to treatment times.
- Further nursing education on use of protocol & CIWA monitoring is warranted.

#### Limitations
- Retrospective observational study with potential differences between study populations
- Potential assessment inconsistencies & documentation inaccuracies with the chart review process
- CIWA-Ar scores unavailable for pre-protocol group to compare AWS severity & course of withdrawal
- CIWA-Ar not validated in a hospital, non-detoxification setting

### Abbreviations
- ACE: Acute Care for Elderly unit
- CIWA: Clinical Institute Withdrawal
- AW: Alcohol Withdrawal
- CTU: Clinical Teaching Unit
- AWP: Alcohol Withdrawal Protocol
- AWS: Alcohol Withdrawal Syndrome
- BDZ: Benzodiazepine
- VGH: Vancouver General Hospital