Evaluation of Phenobarbital for the Treatment of Alcohol Withdrawal

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Over 8 million people are affected by alcohol dependence and 50% will experience symptoms of withdrawal when alcohol is removed. 5% will present with severe alcohol withdrawal with symptoms including seizures and hallucination. DSM-5 defines alcohol withdrawal, but there is no consistent definition for severe alcohol withdrawal in the literature. Studies have used elevated CIWA-Ar Scores and/or symptoms refractory to high dose benzodiazepines.1,4 Benzodiazepines have been standard of care for decades, but phenobarbital has become popular treatment option due to its:• Mechanism of Action• Pharmacokinetics• Drug Shortages

Benzodiazepine monotherapy (n = 15) Phenobarbital monotherapy (n = 0)

Phenobarbital was added to Regions Hospital alcohol withdrawal order set 12/2017 popular treatment option due to its

1. Initial CIWA Score
    16 (10, 22.75) 19.5 (14.5, 23.25) 17 (9.5, 24.5)

2. Highest Recorded CIWA Score:
    25 (19, 29) 20 (16.5, 25.25) 23 (18, 27)

3. Duration of CIWA Assessments, days
    1.5 (2.4, 4.7) 2 (1.1, 2.8) 2.7 (1.2, 5.8)

4. Number of Medication Administrations:
    11 (7, 22.25) 4 (2, 6) 20 (13, 31.75)

5. Ages 18 – 80 years old

6. Documented CIWA-Ar score > 15 with receipt of at least one dose of phenobarbital and/or lorazepam or diazepam for the treatment of alcohol withdrawal

7. Diagnosis of alcohol withdrawal with an associated ICD-9 or ICD-10 code for alcohol use disorder

8. Patients diagnosed with cirrhosis or severe liver disease defined as Child-Pugh class C

9. Recent traumatic brain injury within the last month

10. Pregnancy

11. Documented allergy to any barbiturate or benzodiazepine

12. Patients receiving phenobarbital that are unable to be matched to a patient receiving benzodiazepine monotherapy

Methods

Observational cohort, retrospective chart review:

- 60 Patients presenting between 01/01/2018 to 12/31/2018
- Received Phenobarbital for Alcohol Withdrawal

- 20 Patients presenting between 01/01/2014 to 12/31/2018
- Did not receive phenobarbital

Inclusion Criteria:

1. Age (within 5 years)
2. Sex, and Highest Recorded CIWA-Ar Score (within 2)

Exclusion Criteria:

1. Ages 18 – 80 years old
2. Documented CIWA-Ar score > 15 with receipt of at least one dose of phenobarbital and/or lorazepam or diazepam for the treatment of alcohol withdrawal
3. Diagnosis of alcohol withdrawal with an associated ICD-9 or ICD-10 code for alcohol use disorder

4. Patients diagnosed with cirrhosis or severe liver disease defined as Child-Pugh class C
5. Recent traumatic brain injury within the last month
6. Pregnancy
7. Documented allergy to any barbiturate or benzodiazepine
8. Patients receiving phenobarbital that are unable to be matched to a patient receiving benzodiazepine monotherapy

Phenobarbital administration during severe alcohol withdrawal may be associated with shorter duration of stay:

- Less medication administrations, shorter ICU length of stay, longer duration of mechanical ventilation, more adjunctive medications

Strengths:

- Similar patient populations

Limitations:

- Only 4% of patients in the phenobarbital group received monotherapy
- Did not account for other benzodiazepines or antipsychotics
- Confusion among providers regarding level of care required for phenobarbital administration
- Unable to match 50 patients

Table 1. Patient Demographics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Any Phenobarbital (n = 4)</th>
<th>Phenobarbital monotherapy (n = 4)</th>
<th>Benzodiazepines monotherapy (n = 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male: n (%)</td>
<td>5 (100)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Female: n (%)</td>
<td>0 (0)</td>
<td>0 (0)</td>
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</tr>
</tbody>
</table>

Conclusions

Results Continued

Table 2. Adjunctive Therapies

<table>
<thead>
<tr>
<th>Any Phenobarbital (n = 46)</th>
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<td>Male: n (%)</td>
<td>37 (81)</td>
<td>2 (50)</td>
</tr>
<tr>
<td>Age, years</td>
<td>49.5 (41.25, 55.75)</td>
<td>54 (51.75, 55.5)</td>
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Table 3. Phenobarbital Adjunctive Therapies

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Contact Information

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References