The Cost of Sobriety: Disulfiram-induced Acute Liver Failure

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Learning Objectives
- Recognize drug-induced hepatotoxicity as a leading cause of acute liver failure (ALF).
- Identify hepatotoxicity as an uncommon but serious adverse reaction to disulfiram in cirrhotic patients.

Introduction
- Disulfiram is a well-established medication for treating outpatient alcohol dependence.
- In altering the metabolism of alcohol, disulfiram induces adverse reactions including palpitations, nausea/vomiting, blurred vision, and diaphoresis with a goal of motivating the patient to decrease and/or avoid alcohol use.

Disease Course

<table>
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<tr>
<th>Day</th>
<th>ALF Secondary to Disulfiram</th>
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<tbody>
<tr>
<td>0</td>
<td>Presented to ER</td>
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<tr>
<td>5</td>
<td>Fever peak 102.5° F</td>
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<tr>
<td>10</td>
<td>Confusion improved</td>
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<tr>
<td>15</td>
<td>Disulfiram discontinued and patient improved.</td>
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Initial Work Up

- MCV: 107
- Total Bilirubin: 1.8
- AST: 47
- ALT: 35

ALF Work Up

1- History and Medication Review
- Acetaminophen Level <10
- Ethanol level <10
- Viral Hepatitis Panel
- HBc IgM negative
- Hbs Ag negative
- HAV IgM negative
- HCt IgG negative
- Autoimmune markers: ANA, ASMA, AMA normal
- Lipase 30 units/L

2- Labs:
- Birefringence
- Jaundice
- Liver failure

Drug Induced ALF

- Most common causes:
  - Acetaminophen: denied
  - Antibiotics: started after admission
- Less common causes:
  - Allopurinol x years
  - Atorvastatin x years
  - Aspirin x years
  - Disulfiram x days

Disulfiram discontinued and patient improved.

Discussion
- ALF secondary to disulfiram has been documented in case reports with a dose dependent relationship.
- Age and underlying cirrhosis may be risk factors for hepatotoxicity.
- Case reports support a hypersensitivity-mediated component, with common signs and symptoms of rash, fever and/or peripheral eosinophilia.
- If disulfiram causes jaundice, mortality is thought to be as high as 15-20%.

Take Home Points
- Drug-induced ALF accounts for up to 52% of ALF cases in the United States alone, and disulfiram is a rare cause.
- Alcoholics may have undiagnosed cirrhosis putting them at higher risk for drug-induced ALF such that certain medications should be used with great caution.

Patient Presentation

- 72 year old white male with compensated alcoholic cirrhosis presented with 2 days of fatigue and fever.
- Review of systems without chills, shortness of breath, chest pain, or abdominal pain.
- Last drink was the evening prior to presentation

- No acetaminophen use
- Disulfiram 500mg daily started 10 days prior to presentation as an alcohol cessation tool

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References