Hepatic Encephalopathy in Cirrhosis

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Objectives

- Define hepatic encephalopathy (HE)
- Understand the clinical features and grading system
- Learn common contributing factors and treatments
- Recognize the impact on patient and family
What is Hepatic Encephalopathy?

Spectrum of neurological and psychiatric symptoms in the setting of liver dysfunction, and the absence of a primary neurological cause

Results from shunting, acute liver failure, and cirrhosis
Ammonia

• Generated by gut bacteria
• Typically metabolized through liver
• In cirrhosis, enters systemic circulation and crosses blood-brain barrier
• Levels in the blood do’t always reflect clinical picture
Spectrum of Neuro-Cognitive Impairment in Cirrhosis

Clinical Features & Grading
Common Precipitants

- Bleeding
- Infection
- Constipation
- TIPS
- Diuretics
- Narcotics
- Benzodiazepines
- Renal Function
- Electrolyte disturbances
- Dehydration
Treatment

- Lactulose
- Antibiotics (Rifaximin, Flagyl)
- Diet
Impact on Patient & Family

- Independence
- Driving
- Falls
- ADLs

- Finances
  - Employment
  - Cost of care informal care giving

- Relationships
  - Care giver fatigue
  - Separating illness from personality
Driving

- Seen in Covert and Overt HE
- Impaired simulator and on-road performance
- Increased accidents and traffic violations
- Impaired reaction time
- Limitations

Falls

• Important risk in patients with underlying coagulopathy, osteoporosis, and higher operative risk

• 40% covert (minimal) reported falls (controls and no HE 11.6 & 12.9%)

• Increased need for primary care services and hospitalizations for falls in MHE

• Falls independently affect health related QOL

Employment, Finances & Caregiver Burden

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patients without previous HE (n = 58)</th>
<th>Patients with previous HE (n = 46)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>58.6 (6.3)</td>
<td>57.1 (7.0)</td>
<td>0.272</td>
</tr>
<tr>
<td>MELD score</td>
<td>10.7 (5.0)</td>
<td>15.5 (5.7)</td>
<td>0.00001</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>35%</td>
<td>37%</td>
<td>0.84</td>
</tr>
<tr>
<td>On chronic pain therapy (including narcotics and NSAIDs)</td>
<td>16%</td>
<td>15%</td>
<td>0.83</td>
</tr>
<tr>
<td>Depression requiring therapy</td>
<td>32%</td>
<td>14%</td>
<td>0.08</td>
</tr>
<tr>
<td>Anxiety requiring therapy</td>
<td>10%</td>
<td>10%</td>
<td>1.0</td>
</tr>
<tr>
<td>Currently working</td>
<td>81%</td>
<td>12.5%</td>
<td>0.001</td>
</tr>
<tr>
<td>Need to decrease hours</td>
<td>39%</td>
<td>71%</td>
<td>0.017</td>
</tr>
<tr>
<td>Worse off regarding job</td>
<td>47%</td>
<td>74%</td>
<td>0.009</td>
</tr>
<tr>
<td>Worse off regarding financial status</td>
<td>61%</td>
<td>85%</td>
<td>0.019</td>
</tr>
<tr>
<td>Median duration they would continue to live if all income stopped</td>
<td>1–2 months</td>
<td>7–12 months</td>
<td>0.001</td>
</tr>
<tr>
<td>Median longest period free of work</td>
<td>21 days</td>
<td>365 days</td>
<td>0.035</td>
</tr>
<tr>
<td>Debt from hospital</td>
<td>36%</td>
<td>54%</td>
<td>0.06</td>
</tr>
<tr>
<td>Burden on caregivers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zarit burden interview</td>
<td>11.5 (8.4)</td>
<td>16 (9)</td>
<td>0.016</td>
</tr>
<tr>
<td>Total perceived caregiver burden</td>
<td>65 (21.8)</td>
<td>75.4 (19.2)</td>
<td>0.015</td>
</tr>
<tr>
<td>Impact on finances</td>
<td>9.3 (3.3)</td>
<td>10.6 (4.1)</td>
<td>0.112</td>
</tr>
<tr>
<td>Sense of abandonment</td>
<td>14.6 (7.2)</td>
<td>13.8 (3.3)</td>
<td>0.45</td>
</tr>
<tr>
<td>Impact on schedule</td>
<td>11.9 (7.0)</td>
<td>16.1 (6.2)</td>
<td>0.005</td>
</tr>
<tr>
<td>Impact on personal health</td>
<td>15.6 (4.1)</td>
<td>17.8 (3.7)</td>
<td>0.006</td>
</tr>
<tr>
<td>Sense of entrapment</td>
<td>13.4 (6.5)</td>
<td>17.3 (8.3)</td>
<td>0.016</td>
</tr>
</tbody>
</table>

Nursing Interventions

- Observe for motor function, sleep pattern, and cognitive changes
- Consult family about changes in patient’s baseline behaviour
- Maintain slow, calm environment, reducing distractions and multiple stimulus
- Monitor for unsafe behaviour and risk reduction needs
- Teach support network differences between personality and illness
- Monitor for infection, bleeding, other precipitants
- Stool charting for appropriate Lactulose titration
Goals of Care

- Improving Quality of Life
- Maximizing cognitive function
- Reducing hospitalizations
- Preventing car accidents
- Preventing falls and other injuries
Take Home Points

• Lactulose- titrate for 3 soft BM/day, patient & family education

• Independence-consider supports needed to help maintain safe environment (transportation, fall avoidance) while maximizing independence

• Caregiver-Don’t forget the patient’s informal network (education and support assessment)