Nursing Care & Management of the Pre-Liver Transplant Population

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Objectives

1. Identify key nursing interventions in caring for pre-transplant ESLD patients.
2. Identify goals of daily management of patients with ESLD
3. Identify ways to provide a safe environment for this population
4. Identify appropriate nursing interventions before and after common diagnostic and interventional tests in ESLD patients
5. Identify abnormal findings that warrant notifying the team
6. Understand the bedside nurse role in the evaluation process
Complications of Decompensated Liver Failure
ABNORMAL
Hepatic Encephalopathy

Diagnosis

- Patient presentation
- Ammonia level (NH₃>60)

Altered Mental Status

- Caution! Consider other potential causes
  - Sepsis (Infection)
  - Delirium
  - Dementia
  - Stroke
Hepatic Encephalopathy Treatment

↑ Clearance
- Lactulose (PO, PR)
- Sodium Benzoate
- Dialysis

↓ Production
- Rifaximin
- Neomycin

↓ Absorption
- Lactulose
- Sodium Benzoate
# Stages of Hepatic Encephalopathy

## Table 1: West-Haven Criteria for Hepatic Encephalopathy (HE)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Consciousness</th>
<th>Intellect and Behavior</th>
<th>Neurologic Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>Normal</td>
<td>Normal examination; if impaired psychomotor testing, consider MHE</td>
</tr>
<tr>
<td>1</td>
<td>Mild lack of awareness</td>
<td>Shortened attention span</td>
<td>Impaired addition or subtraction; mild asterixis or tremor</td>
</tr>
<tr>
<td>2</td>
<td>Lethargic</td>
<td>Disoriented; Inappropriate behavior</td>
<td>Obvious asterixis; Slurred speech</td>
</tr>
<tr>
<td>3</td>
<td>Somnolent but arousable</td>
<td>Gross disorientation; Bizarre behavior</td>
<td>Muscular rigidity and clonus; Hyperreflexia</td>
</tr>
<tr>
<td>4</td>
<td>Coma</td>
<td>Coma</td>
<td>Decerebrate posturing</td>
</tr>
</tbody>
</table>

MHE, minimal hepatic encephalopathy.
Lactulose is YOUR Friend...

Lactulose is a first line agent to prevent encephalopathy

Do NOT hold Lactulose without first having a plan with the NP/MD

Understand why patients may refuse
Ascites

• **Treatment:**
  - Sodium restriction
    - fluid restriction
  - Mobility
  - Diuresis
    - Albumin w or w/o Lasix (temporary)

• **Considerations:**
  - Infection (SBP) → start antibiotics prophylactically
  - Position in bed
  - Umbilical hernia
  - Safety- fall precaution
  - Skin
TIPS: Transjugular Intrahepatic Portosystemic Shunt

- Reduces portal hypertension
- Indications: variceal hemorrhage and refractory ascites
- Metal stent inserted via jugular vein
- Connects portal vein directly to hepatic vein
- Shunts blood from GI tract directly back into systemic circulation = Bypasses the liver
Nursing Considerations: TIPS

- Done in IR under general anesthesia
  - NPO p midnight
  - Consent
- Assessment/Monitoring:
  - S/s bleeding
  - Insertion site for hematoma
  - Confusion
  - LFT increase (specifically serum bilirubin)
  - Kidney function - d/t contrast
  - US to evaluate TIPS patency - overtime can develop scar tissue and become blocked
Paracentesis

• Indications:
  • Therapeutic: Remove fluid to decrease pressure in the abdomen and on the lungs
  • Diagnostic for SBP (especially if patient is having a fever of unknown source)

• Pre-Procedure
  • Consent (done by NP/MD who is performing the procedure)
  • Does NOT need to be NPO
  • HOB 30 degrees
  • Done under ultrasound
Paracentesis – Nursing Implications

• Gather Supplies:
  • Paracentesis kit
  • 4-6 bottles of 1L vacutainers
  • Red biohazard bag

• Considerations:
  • Will most likely send samples to lab
  • Crystalloid replacement
  • Monitor for bleeding
    • Dressing (usually a band-aid)
    • Oozing afterwards may occur
  • Educate patient/family
    • Refractory ascites → it will come back!
Systemic Hypotension

• Normal for patients to have systolic blood pressures in the high 80-90’s or low 100’s.

• Goal is to look at the trends

• Nursing considerations (alternate causes)
  • Dehydration (hypovolemia)
  • Bleeding
  • Sepsis (infectious process)
Dialysis

• Patients on Dialysis (single pass)
  • Tolerate?
  • Trends
  • Review CXR
  • Goal of dialysis
  • Medications
  • Have a plan!
    • CRRT- ICU
Varices

- Types of Varices
  - Esophageal
  - Gastric
  - Anorectal
Nursing Care for Patients with Varices

• **Assessment**
  - Black tarry stools, coffee ground, frank & obvious bleeding
  - N/V
  - Orthostatic hypotension
  - Tachycardia
  - Cough
  - Anemia

• **Labs**
  - PTT, PT, INR, fibrinogen, hematocrit, hemoglobin, platelets
    - Acceptable abnormal labs in ESLD
  - Late sign: urine output
  - Recent Type and Screen
Bleeding Varices

• Medications
  • Proton pump inhibitors, beta blockers (propranolol, nadolol), vasoconstrictors (octreotide)
  • Drips: Octreotide, Protonix
  • Antibiotics (metronidazole, ceftriaxone, piperacillin/tazobactam) for active bleeds

• Blood Products
  • Volume expanders, fresh frozen plasma, cryoprecipitate, platelets, packed red blood cells

• Anticipate Needs
  • Large bore IVs
  • MTP… get back up!
    • Emergency equipment
  • Cardiac monitor
  • Intubation for airway protection
  • Nasogastric tube with lavage
  • CAUTION: nursing should not insert a NGT in a patient with varices.
Esophagogastroduodenoscopy (EGD)

- Consent required
- NPO
- Treatment:
  - Banding: Elastic band is placed around the dilated vein to cut off blood flow to the vein
  - Inject epinephrine (to shrink the varices)
  - May need to Re-scope patient to check bands are intact (can/will fall off)
- Nursing management
  - No hard foods for these patients x3 days after banding
  - Start on clear liquid diet, and advance to mechanical soft diet x 3days

Colonoscopy

- Consent
- Prep until stool clear
- NPO after midnight with clear liquid diet during the day before
- IVF
- Monitor electrolytes (over next several days)
Acute Variceal Hemorrhage

- ICU level of care
- Intubation for airway protection
  - Importance of emergency equipment ready at bedside!
    - Suction
    - Oxygen flow meter
    - Ambubag
Hepatopulmonary Syndrome

• Treatment
  • Oxygen
  • Keep O2 sat > 93%
  • Garlic tabs PO BID

• Management
  • Lie flat
  • Patients may tolerate O2 sats down to 70-80’s
    • document
  • Mobilization is still very important and necessary

• Other considerations
  • Portopulmonary hypertension
  • Pulmonary edema
  • Pleural effusion
Nursing Considerations

• **Skin**
  • Fragile, thin
  • Gums may bleed
  • Oozing - CVC lines

• **Mobility**
  • DVT prevention

• **Safety**
  • Bed alarm
  • Bedside commode or proactive toileting
  • Restraints, COA, volunteer
Nutrition

• Diet
• Enteral and Parenteral Nutrition
  • NGT
  • Dobhoff (small bore)
  • Central line vs. Peripheral line (TPN vs. PPN)
• If NPO >3 days, notify team, may need to make a referral to dietitian
• Snacks and supplements
• Calorie count
• Aspiration precaution
  • Swallow study
Psychosocial

- Care of patient
- Care of family
- Social worker
  - Support groups (every Wednesday)
- Use of volunteers or care extenders
Evaluation Process

- Referral- transfer/admit-workup
- Consults: cardiology, psychiatry, GI, hepatology, ID, nephrology, neurology, pulmonary, dermatology
- Tests: blood work, diagnostics, scans
- Social work consult to evaluate family support
- Present & ad hoc meetings
- Listed vs. denied → medicine transfer
  - Palliative care
  - Listed → tune up, dc home and wait
    - If MELD >35, typically stay in house to wait
Mortality Rates Based on MELD Score

• 90-day mortality rate of patients with the following MELD scores:
  - MELD 25 = 43%
  - MELD 30 = 62%
  - MELD 35 = 79%
  - MELD 40 = 89%

(Mayo Foundation for Medical Education and Research, 2018)
Questions?