Nutrition & Liver Disease

Minimizing Symptoms and Optimizing Health
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Malnourishment & Liver Disease

- Common in people with liver disease:
  - 20% of those with mild liver disease
  - 100% of people at time of transplant
- Hidden by fluid gains from edema & ascites
- Signs: - muscle wasting
  - decreased fat stores,
  - poor appetite

Nutritional Needs of Patients with Liver Disease

"Accelerated Starvation": It would take a healthy adult 72 hours of starvation to reach same level of fat & muscle breakdown as occurs in overnight fast for cirrhotic patient (due to low liver & glycogen stores)

- 3-1/2 pounds
- One of the largest organs
- 8" wide x 6.5" height
  4.5" deep
What Does the Liver Do?

**Nutrition Related Functions**

- Manufacturing Plant
- Storage Facility
- Waste Disposal

**Liver & Related Organs**

**Manufacturing Functions**

- **Protein** - for the bloodstream (albumin)
- **Glycogen** - storage form of glucose for energy
- **Bile** - to help digest fats that are needed for cell structure and energy
- **Cholesterol** - and special proteins to carry fat through the blood

**Storage Facility**

- **Glycogen** - released when our bodies need energy (this includes during sleep for basic metabolism)
- **Iron** - most is stored in the liver
Waste Disposal

- **Ammonia** - from the breakdown of dietary protein and muscle tissue
- **Bilirubin** - from the breakdown of red blood cells
- **Bacteria** – removed from the bloodstream
- **Drugs and Alcohol** - are metabolized in the liver

Common Problems that Interfere Eating

- Decreased abdominal room due to ascites
- Delayed gastric emptying
- Decreased appetite
- Poor nutrient absorption:
  - Decreased bile production = low fat absorption
  - Diarrhea
- Overzealous diet restrictions
- Altered mental status/ encephalopathy

How Diet Can Help with Symptoms

**Fluid Gain: Ascites, Edema**

1. Low Sodium Diet: decreases water/ fluid retention
2. Adequate protein: keeps fluid in the arteries and veins rather than leaking into tissues
3. Avoid Excessive Fluid Intake

**Low Sodium Diet**

- 2000- 2400 mg Sodium/ day
- <200 mg/ serving or 700 mg/ meal
- Replace salt shaker with herb shaker
- Stock kitchen with fresh unprocessed foods
- Avoid eating out- eat in!
- Be patient- tastes change!
**Fluid Intake**
- Avoid overhydration—usually 6-8 cups/day is adequate (48-64 oz)
- Suck on ice chips, candy or gum rather than guzzling water
- If low serum sodium is an issue, may need a fluid restriction
- Avoid dehydration however—can lead to renal problems

**Protein Intake**
- Meat Group: 4-5 oz./day for women or 6 oz./day for men, plus 1-2 cups milk/day
- Adequate to: maintain muscles protein levels in blood
- Protein Restriction: only used as last resort
  - Cases of TIPS or no improvement in encephalopathy
  - First try medicines: lactulose, Neomycin, Metronidazole
  - More common causes of encephalopathy:
    - GI bleed, infection, medicines, missed lactulose doses

**Small Frequent Meals**
- Ascites—decreases room in stomach
- Muscle wasting from low glycogen stores
- Nausea
- Blood sugars

**Delayed Stomach Emptying (Gastroparesis)**
- Control blood sugars if diabetic
- Avoid gut slowing meds if possible such as many painkillers
- Use liquids over solids if necessary
- Avoid high fiber, high volume foods
- May need meds to increase GI motility
Avoiding Toxicity

- **Bacteria:**
  - No uncooked shellfish
  - Wash hands prior to eating
  - Keep leftovers refrigerated
- **Protein waste products:**
  - Avoid too little protein intake
    - (Increases muscle breakdown)
  - Avoid too much protein intake
- **Alcohol and over-the-counter meds:**
  - Check all drugs with doctor

Supplements

- **Zinc:** Lost in urine
- **Milk Thistle:** Likely harmless but not shown to be beneficial
- **SAMe:** (S-adenosylmethionine)
  - May be beneficial but expensive
    - 400 mg QID
- **Betaine:** From juice of sugar beet
  - Helps decrease homocysteine levels
    - 10 grams 2 x’s day
    - Ongoing trials

Selected CAM agents and Related Hepatotoxicity

- **Kava Kava**
  - Hundreds of cases of liver damage
- **Black cohosh**
  - Hepatotoxicity, liver failure
- **Skullcap, pyrrolizidine alkaloids**
  - Veno-occlusive disease
- **Senna**
  - Toxic hepatitis
- **LipoKinetix**
  - Acute hepatitis
- **Cascara sagrada**
  - Cholestatic hepatitis
- **celandine, germander, mahuang**
  - Acute hepatitis

Remember:

- Check with Doctor to see if any special restrictions are needed
- Consult with a dietitian as needed
- Don’t wait til signs of malnourishment are advanced to take action