Nutrition & Liver Disease

Minimizing Symptoms and Optimizing Health

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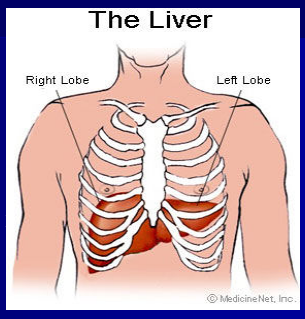
Malnourishment & Liver Disease

- 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

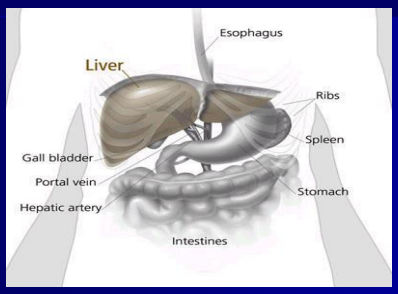


What Does the Liver Do?

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

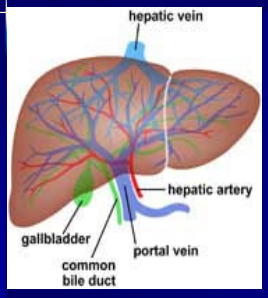
Waste Disposal

- **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 absoprtion
  - Diarrhea
- Overzealous diet restrictions
- Altered mental status/ encephalopathy

How Diet Can Help with Symptoms



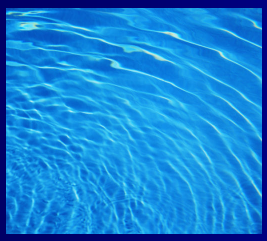
Fluid Gain: Ascites, Edema

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 lactolose 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

Herb/ supplement	Action
Kava Kava	Hundreds od cases of liver damage
Black cohosh	Hepatotoxicity, liver failure
Skullcap, pyrrolizidine alkaloids	veno-occlusive disease
Senna	toxic hepatitis
LipoKinetix	acute hepatitis
Eternal Life, Pennyroyal	hepatotoxicity
Aristolochia, Bajiaolian	hepatitis
Cascara sagrado	cholestatic hepatitis
celandine,germander,mahuang	acute hepatits

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