Nutritional Aspects of Primary Biliary Cirrhosis

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Overview

- Importance of nutrition therapy in PBC
- Incidence and pertinence of malnutrition
- Nutritional needs in PBC
- Guidelines for a healthy diet and lifestyle

How does the liver affect nutritional status?

- **This multitasking organ is responsible for:**
  - producing quick energy
  - manufacturing new body proteins
  - storing vitamins, minerals, and sugars
  - transporting and storing cholesterol and other fats
  - aiding digestion by producing bile

Prevalence and effect of malnutrition in liver transplant recipients

- 75% of patients are protein-calorie malnourished
- This leads to:
  - longer hospital stays
  - requirement of more blood products
  - increased risk of organ rejection
  - increased risk of death
- Dietary interventions can help to improve quality of life and reduce disease-related complications.

Factors contributing to malnutrition

- Anorexia and early satiety
- Nausea and vomiting
- Steatorrhea and malabsorption
- Medication-induced losses
- Alterations in energy and protein metabolism
- Restricted diets

Malabsorption

- If clinically jaundice - diarrhea and weight loss may be present
- Malabsorption of dietary fat (steatorrhea)
- Often due to decreased secretion of bile acids which aid in the absorption of fats across the intestinal membrane
- Pancreatic insufficiency
- Celiac disease

Nutrition Therapy

Nutritional imbalances vary and not all persons with liver disease require the same dietary modifications.

Dietary Guidelines for Fat Malabsorption

- Restrict intake of dietary fat
- Medium Chain Triglycerides or MCT oils to supplement calories
  - Unlike the Long Chain Fatty Acids they are absorbed without the help of bile acids
  - Use MCT oil in cooking or take directly by the teaspoon
  - Consult a dietitian
- Pancreatic insufficiency-pancreatic enzyme replacement
- Celiac Disease – gluten free diet
Incidence of Fat-Soluble Vitamin Deficiencies in PBC Patients

- Vitamin A: 33.5%
- Vitamin D: 13.2%
- Vitamin K: 7.8%
- Vitamin E: 1.9%

Vitamin D

- Measure serum levels:
  - 1,25-dihydroxy D (active form)
  - 25-hydroxy D (storage form)
- Replacement: 50,000 IU vitamin D2 2-7 days/week if blood levels are depleted
- Osteoporosis occurs in 25% of PBC cases

Vitamin A

- Symptoms of deficiency: night blindness, Xerosis, Bitot’s spots, hyperkeratosis of skin
- Plasma retinol is measured
- Deficiency is treated with 15,000 IU per day
- In rare cases, IV vitamin A may be required
- Food sources: fish oils, liver, egg yolk, milk, green leafy vegetables

Vitamin D

- Recommendations if levels are normal:
  - Calcium supplement - 1500mg per day
  - 800 IU of vitamin D per day
  - Caltrate 600 Plus: one tablet 3 times/day
  - Os-Cal 500 with D: one tablet 3 times/day
  - Viactiv Chews: one chew 3 times/day

In order to maximize absorption, supplements should be taken at three separate times each day.
**Vitamin E**

- Plasma vitamin E levels can be measured.
- Symptoms of deficiency: neuropathy, hemolytic anemia
- Food Sources: vegetable, soybean and corn oils, and nuts.
- Deficiency is rare.

**Symptoms of deficiency: neuropathy, hemolytic anemia**

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**Deficiency is rare.**

**Vitamin K**

- Symptoms of deficiency: bleeding
- Measured by serum prothrombin time (PTT)
- Food sources: green leafy vegetables, colon also produces vitamin K
- Replacement: 5-10mg vitamin K orally

**Supplements**

- Do not take high doses of vitamins unless directed by your doctor
- A daily multivitamin without iron is safe
- Herbal products should be taken with extreme caution!
  - Examples of commonly used herbs:
    - Celery Seed
    - Dandelion
    - Green Tea
    - Licorice root
    - Milk thistle
- Be sure to inform your doctor and dietitian of any products you are taking

"St. John's Wort is a great herb for improving your mood. But maybe it's time to cut back the dosage."
Hypercholesterolemia

- High cholesterol levels common among PBC
- Low risk of heart disease
- High HDL levels (high density lipoproteins or “good cholesterol”)
- Low LDL levels (low density lipoproteins or “bad cholesterol”)
- Presence of Lipoprotein X

2005 Dietary Guidelines
Nine General Topics

1. Adequate Nutrients
2. Weight Management
3. Physical Activity
4. Food Groups to Encourage
5. Fats
6. Carbohydrates
7. Sodium
8. Alcoholic Beverages
9. Food Safety

2005 Dietary Guidelines
for Americans

“Feel better today. Stay healthy for tomorrow.”

It’s not a program.
It’s a lifestyle.

It is based on the most up-to-date science available and developed by leading health and nutrition experts in the country.

Previous Food Guide Pyramid

- Fruits, Vegetables, Whole Grains
- Meat, Poultry, Fish, Dry Beans, Eggs, Nuts
- Milk
- Breads, Cereals, Snacks
- Alcohol

KEY:
1. All individually serving, except as noted.
2. Contains added sugar.
3. Use natural sugars for added sugars in foods.
**Daily Food Recommendations**

- **Grains:** 6 ounces
  - Aim for at least 3 ounces of whole grains
- **Vegetables:** 2 1/2 cups
  - Vary your veggies
- **Fruits:** 2 cups
  - Go easy on juices
- **Milk:** 3 cups
  - Choose low-fat or fat-free dairy products
- **Meat and Beans:** 5 1/2 ounces
  - Choose low-fat or lean meats and poultry

**MyPyramid “Steps to a Healthier You”**

- Introduced in April of 2005
- Incorporates Dietary Guidelines and Illustrates:
  - Personalization
  - Gradual Improvement
  - Physical Activity
  - Variety
  - Moderation
  - Proportionality

**In addition to your food groups....**

- Limit solid fats and sugars to 265 calories a day
- Your allowance for oils is 6 teaspoons a day
- Be physically active for at least 30 minutes most days of the week

Visit MyPyramid.com for more information and tracking sheets.
Benefits of Exercise

- Provide Energy
- Improve Cardiovascular Function
- Reduce Body Fat/Increase Muscle Mass
- Prevent Osteoporosis

Aerobic & Weight-Bearing

Designing an exercise program

- 10,000 Steps Initiative
- Videotapes or DVDs
- Personal Fitness Trainer

Special Considerations for PBC

- Small, frequent meals
- Increased caloric needs
- Specialized protein needs
- Medication interactions

"I tried all the fitness fads, but my doctor was right all along—walking is still the best exercise."
Thank you!