Optimizing Nutrition through the Continuum of Care:
Pancreatic Enzymes, Symptom and Side Effect Management

September 13, 2016

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OPTIMIZING NUTRITION THROUGH THE CONTINUUM OF CARE:
PANCREATIC ENZYMES, SYMPTOM AND SIDE EFFECT MANAGEMENT
SEPTEMBER 13, 2016

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PROVEN BENEFITS OF NUTRITION

“Nutrition intervention improves outcomes in patients with cancer cachexia receiving chemotherapy.”

• Nutrition counselling by a dietitian
• Prescription of oral nutritional supplements


PROVEN BENEFITS OF NUTRITION

Results after 8 weeks:

↑ dietary intake
↑ nutrition status
↑ physical functioning
↑ quality of life
↑ trends in weight and muscle mass
PROVEN BENEFITS OF NUTRITION

“Weight stabilization is associated with improved survival duration and quality of life in unresectable pancreatic cancer.”

↑ quality of life
↑ survival duration


NUTRITION THERAPY GOALS

• Prevent or reverse poor nutrition
• Maintain dose and schedule of cancer treatments
• Manage symptoms
• Maintain or improve weight and strength
• Maximize quality of life
• Recover from surgery and go on to postop therapy as appropriate
ROLE OF THE PANCREAS

• Produce enzymes to help digest food to be transported in blood stream.
• Produce insulin to help transfer glucose from the blood to the cells where it is used for energy.
PANCREATIC ENZYMES

Enzymes + Protein + Fat + Carbohydrate = Fatty Acids + Amino Acids + Glucose

INSULIN

Glucose + Insulin + Receptor + Glucose + Insulin + Cell

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OUTLINE

• Pancreatic exocrine insufficiency
• Symptom management
• What to eat
• Long-term nutrition considerations

PANCREATIC ENZYMES
SYMPTOMS OF PANCREATIC EXOCRINE INSUFFICIENCY

- Feelings of indigestion
- Cramping after meals
- Large amounts of gas
- Foul smelling gas or stools
- Floating stools or greasy/fatty stools
- Frequent stools
- Loose stools/diarrhea
- Unexplained weight loss

Narcotic = Constipation + Malabsorption = Diarrhea

Normal Bowel Function
HOW TO OPTIMIZE ENZYMES:

• Take at the beginning and throughout the meal/snack
• Troubleshooting may include adjustments to timing
• Don't take at the same time as antacids or iron supplements
• If prescribed by your doctor, take acid reducing medication daily.

THE RIGHT ENZYME AND HOW MUCH TO TAKE

• Find the brand and the dose that works for you and stick with it.
• Start:
  • Meals: 20,000-40,000 units of lipase per meal
  • Snacks: 10,000-20,000 units of lipase per snack

<table>
<thead>
<tr>
<th>Current Brands Available by Prescription</th>
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<tr>
<td>Creon</td>
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<tr>
<td>Pertzye</td>
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<td>Zenpep</td>
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ENZYME DOSAGE: TITRATION

• Increase until pancreatic insufficiency symptoms are minimized/eliminated

• Maximum: 2500 units of lipase per kilogram per meal (or 10000 units of lipase per kilogram per day)

WHAT DOES THAT REALLY MEAN?

• 60 kg (130 lb) woman

• Max daily dose = weight x 10,000 L.U.

60 x 10000 = 600,000 lipase units/day =

48 capsules Creon 12,000

Or 60 capsules Zenpep 10,000
PANCREATIC ENZYMES:
SIDE EFFECTS OF TOO MANY

- Constipation (most common)
- Nausea
- Abdominal Cramps
- Diarrhea

*Careful not to confuse with symptoms of inadequate enzyme use or chemotherapy or radiation treatment.*
COMMON SIDE EFFECTS

- Poor appetite
- Early satiety
- Nausea and/or vomiting
- Taste Changes
- Diarrhea
  - Lactose Intolerance
  - Dumping syndrome *
- Constipation
- Excessive gas
- Diabetes

* More common with surgery

POOR APPETITE

- Eat small amounts frequently
- Schedule meals/snacks
- Use liquid calories
- Light activity
- May benefit from medication
EARLY SATIETY

- Alleviate gas and bloating
- Liquids between meals
- Small servings, more often
- Limit high fat or fried foods
- High fiber foods may be problematic
- Medications

NAUSEA/VOMITING

- Medication
- Eliminate offending odors
- Dry crackers/toast
- Avoid overly sweet, greasy/fried, or highly spiced foods
- Use room temp foods
- Oral care
- Eliminate stress
TASTE CHANGES

• Rinse mouth
• Metallic taste: use plastic utensils and serving ware
• Enhance dull taste use tart flavors
• Try new foods or foods previously disliked

DIARRHEA

• Work closely with medical team (multiple causes of diarrhea):
  • Treatment Induced
  • Lactose Intolerance
  • Bacterial Overgrowth
  • Pancreatic/Digestive Insufficiency
  • Dumping syndrome (after Whipple or gastric bypass)
NUTRITION THERAPY FOR DIARRHEA (INDEPENDENT OF CAUSE)

Limit or avoid:
• Lactose (or add lactase)
• Insoluble fiber
• Foods sweetened with sugar alcohol
• Sugar sweetened beverages

Increase:
• Soluble fiber
• Fluids

LACTOSE INTOLERANCE

• May be temporary
• May be able to tolerate low lactose foods
• Provide lactase enzymes prior to a meal—avoid limiting diet
DUMPING: SYMPTOMS

• Flushing
• Sweating
• Feeling of low blood sugar
• Loose BM

Generally occur within 2 hours of eating.

DUMPING

• Limit portion sizes
• Drink liquids between meals
• Avoid foods high in sugar
• Avoid hot liquids
• Add soluble fiber
CONSTIPATION

- Bowel regimen may be warranted
- Hot fluids
- Include high fiber foods
- Limit gas forming foods, carbonated beverages, straws, chewing gum

EXCESSIVE GAS

- Optimize pancreatic enzymes
- Use simethicone (Gas-X) liberally
- Avoid gas-producing foods:
  - Broccoli, cauliflower, cabbage
  - Onions
  - Beans
  - Carbonated beverages (beer, soda)
- Avoid chewing gum
- Avoid drinking through straws
- Consider Bean-O
GLUCOSE INTOLERANCE/DIABETES

• Medication
• Customize diet
• Limit refined carbohydrates
• Eat carbs in combination with protein, fiber, and fats

After treatment/surgery complete:
• Carbohydrate controlled diet
• Use high fiber carb foods as tolerated

WHAT TO EAT?
GENERAL NUTRITION TIPS

• Eat small frequent meals (6-8/day)
• Plan meals/snacks the day before
• Get plenty of fluids
• Limit use/portions of fat containing foods
• Choose nutrient dense foods
• Be active

PROTEIN

• Poultry, fish, meat
• Beans, peas, lentils
• Nuts and seeds
• Eggs
• Yogurt, milk, cheese
• Vegetarian alternatives: soy milk, tofu, veggie burgers, protein powders, etc.
COMPLEX CARBOHYDRATE

- Bread, pasta, rice, cereal, etc
- Fruits
- Vegetables
- Dairy products

FAT (AS TOLERATED)

- Nuts and seeds
- Avocado
- Olives
- Oil: canola, olive, peanut
FLUIDS

Most patients require 6 to 12 cups per day of non-alcoholic fluid per day to maintain adequate hydration. (8 oz. = 1 cup)

Water  
Juice  
Milk or dairy alternatives  
Gelatin

Tea  
Sports drinks  
Broth

LIQUID NUTRITIONAL DRINKS

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<tr>
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<td>• Boost</td>
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<td>• Ensure</td>
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• Home made smoothies
  • Mix in blender
    • Liquid: juice, yogurt, milk, soymilk, etc
    • Fruit and/or cooked vegetables
    • Protein: protein powder, tofu, cottage cheese, Greek yogurt
LOOKING AHEAD- NUTRITION AND SURVIVORSHIP

AICR GUIDELINES FOR CANCER SURVIVORSHIP

- Be lean but not underweight
- Physically active 30 minutes a day
- Avoid sugary drinks and limit consumption of energy dense foods (high in sugar, low in fiber, and high in fat)
- Variety of fruits, vegetables and whole grains, legumes
- Limit consumption of red meat and processed meats
- Limit alcohol
- Limit salty foods or processed foods high in salt
- Do not rely on supplements to protect against cancer
• Citrus
• Apples
• Parsley
• Grapes
• Flaxseed
• Walnuts
• Soy
• Dark Green Leafy
• Winter squash

• Broccoli and cruciferous vegetables
• Legumes, dry beans, peas and lentils
• Cranberries
• Blueberries
• Cherries
• Tea
• Whole grains
MAINTAIN OPTIMAL NUTRITIONAL STATUS

• Set goal weight
• Daily MVI and mineral supplement
• For Bone Health: Calcium 500-1000mg/D and Vitamin D at 600-1000IU/D as warranted
• Ongoing monitoring of fat malabsorption
• May need acid reducing medication
• Manage Diabetes Mellitus
  • Diabetes Educator for comprehensive teaching

MONITORING FOR VITAMIN AND MINERAL DEFICIENCIES

• Vitamin B12
• Iron
• Ferritin
• Vitamin D or 25OHD
• If suspect severe malnutrition or malabsorption, may check Vitamins E, A, K, as well as zinc, copper and selenium
• Bone mineral density
WHAT ABOUT OTHER DIETARY SUPPLEMENTS?

REGULATORY STANDARDS OF DIETARY SUPPLEMENTS

• Premarket notifications to the FDA
• Proof of Efficacy
• Proof of Safety
• Premarket FDA approval and post marketing surveillance
• Good Manufacturing Practices
• Disease Treatment Claims
MISCONCEPTIONS AND RISKS

- “Pose no risk to the general population” and “rarely or never harmed by supplements”
- “More is better”
- “Natural or Standardized”
- Quality concerns are challenging
- False claims
- Other concerns-surgical or procedural complications

SUPPLEMENTS

- Turmeric
- Omega-3 Fatty Acids
- Probiotics
TURMERIC/CURCUMIN

• Studies in advanced pancreatic cancer found to be well tolerated
• Combination with some chemotherapy agents found to be safe
• Poor absorption
• May work against some chemotherapy drugs ie cyclophosphamide
• Watch for drug/herb interactions

OMEGA 3 FATTY ACIDS

• Fish oil, krill oil, cod liver oil, flaxseed oil, linseed oil
• Supplementation for cancer prevention is inconclusive
• Preliminary findings that it may support muscle mass, may increase efficacy and tolerability of chemotherapy
• Doses greater than 3 grams may increase bleeding time
• Do not take if you are taking NSAIDS or Glucocorticoids
PROBIOTICS FOR DIARRHEA

• Sources of probiotics:
  • Foods
  • Dietary Supplements

RESOURCES

• ConsumerLab: independent product testing
  www.consumerlab.com

• The National Institutes of Health Office of Dietary Supplements-

• Memorial Sloan Kettering Cancer Center Website
  www.mskcc.org/cancer-care/integrative-medicine

• National Center for Complementary and Alternative Medicine
  www.nccam.nih.gov/

• U.S. Pharmacopeial Convention
  http://www.usp.org/dietary-supplements/overview
FINDING A DIETITIAN

• How to Find a Registered Dietitian:
  • Request a consult at your cancer center
  • Commission on Dietetic Registration
    • Search: Board Certified Specialists in Oncology Nutrition List by State-
      www.cdrnet.org
  • Contact the Pancreatic Cancer Action Network
  • Contact The Academy of Nutrition and Dietetics
    www.eatright.org

COOKBOOKS

• What to Eat During Cancer Treatment: 100 Great-Tasting, Family-Friendly Recipes to Help You Cope (2009) by Jeanne Besser
• The Cancer-fighting Kitchen: Nourishing, Big-Flavor Recipes for Cancer Treatment and Recovery (2009) by Rebecca Katz
• One Bite at a Time (2009) by Rebecca Katz
• The New American Plate Cookbook: Recipes for a Healthy Weight and a Healthy Life (2005) by The American Institute for Cancer Research

• Online:
  • AICR
  • Cooking Comfort Care
  • Cook for Your Life
READY TO ANSWER QUESTIONS…

Thank you for your participation.

If you have questions, please contact Patient Central at (877) 272-6226 or e-mail patientcentral@pancan.org.

www.pancan.org