Nutrition & Neuroendocrine Tumors

Presented by:
Greta Macaire MA, RD, CSO
UCSF Helen Diller Family
Comprehensive Cancer Center

UCSF Helen Diller Family
Comprehensive
Cancer Center

On Today's Menu

- Healthy Eating Basics
- Nutrition and Cancer Treatment
- Carcinoid Syndrome & Diet
- Resources for More Information

How Can Nutrition Help Me?

- Improve treatment tolerance
- Promote overall health and wellness
- Support immune system
- Side effect management
- Complement traditional treatments

Improves Treatment Tolerance

- Good nutrition during cancer treatment is associated with:
  - Less complications and infections
  - Fewer treatment breaks and faster recovery
  - Improved strength and energy
  - Better survival/outcomes
- For some, just meeting basic needs becomes a challenge.

Creating a Healthy Eating Plan

- Nutrient rich, whole foods diet
- Timing of meals and snacks
- Plenty of fluids
- Food preferences
- Individual needs
- Ease of preparation

Healthy Eating

AICR Guidelines for C

www.aicr.org

Recommendations for cancer prevention

1. Be as lean as possible without becoming underweight.
2. Be physically active for at least 30 minutes every day.
3. Avoid sugary drinks. Limit consumption of energy-dense foods (particularly processed foods high in added sugar, or low in fiber, or high in fat).
4. Eat more of a variety of vegetables, fruits, whole grains and legumes such as beans.
5. Limit consumption of red meats (such as beef, pork and lamb) and avoid processed meats.
6. If consumed at all, limit alcoholic drinks to 2 for men and 1 for women a day.
7. Limit consumption of salty foods and foods processed with salt (sodium).
8. Don't use supplements to protect against cancer.
9. It's best for mothers to breastfeed exclusively for up to six months and then add other liquids and foods.
10. After treatment, cancer survivors should follow the recommendations for cancer prevention.

And, always remember –
do not smoke or chew tobacco.

The New American Plate

Your plate should hold ⅔ (or more) vegetables, fruit, whole grains and beans and ⅓ (or less) meat, chicken or fish.

The New American Plate

Phytonutrients:

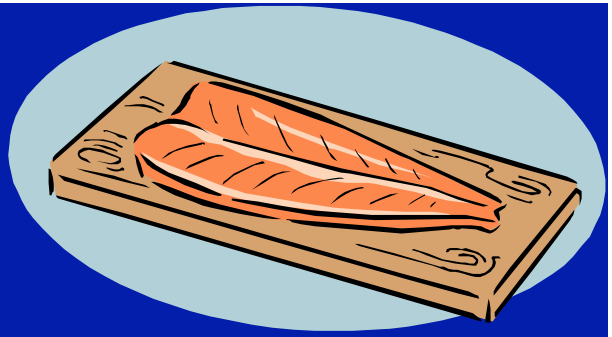
Natural plant compounds that promote health via actions such as:

- Anti-inflammatory
- Anti-oxidant
- Immune boosting

Founds in vegetables, fruits, herbs, spices, tea, nuts, seeds, whole grains, beans & legumes

Best to obtain from food sources due to synergistic effect.

Omega-3 Fatty Acids



- Benefits include:
  - Decreasing cancer-related weight loss and fatigue
  - Supporting the immune system
  - Benefits for heart health and mood
- Food sources:
  - Wild salmon, trout, herring, sablefish, sardines
  - Flaxseed meal, walnuts, pumpkin seeds, chia seeds.
- Plan for a plant source daily and 2 servings of fish (~4 oz) weekly.
  - Consider a good quality supplement if dietary intake is low.

Vitamin D

- Important for:
  - Immune function
  - Normal cell cycle process
  - Reducing inflammation
  - Muscle strength and bone health

- Sources:
  - Sunlight, fatty fish, eggs, fortified foods & dietary supplements

- Adults need ≥800 IU Vitamin D3/day.

- Check vitamin D blood levels (25-OH, vitamin D) to ensure adequate stores → especially with chronic diarrhea or malabsorption.

Summary: Healthy Diet Guidelines

- Balanced diet with a variety of foods:
  - Primarily plant based, nutrient dense diet
  - Choose fruits & vegetables of intense color
  - Choose whole grains over refined choices
  - Choose lean & plant protein sources
  - Choose healthy fats from olive oil, nuts/seeds, avocadoes
  - Limit added sugars & processed fats
  - Adequate fluids – avoid sugary drinks & limit alcohol
- Be physically active and maintain a healthy weight
- Modify diet as needed to manage side effects of treatment

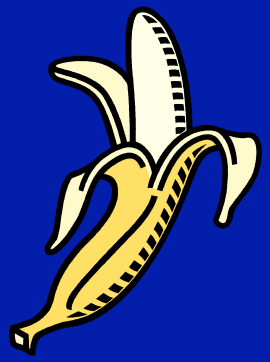
NET Specific Nutrition Considerations

- Nutrition related side effects of treatment
- Carcinoid syndrome
- Specific types of tumors or syndromes:
  - Insulinomas, Gastrinomas, VIPomas, etc…
- Other medical issues:
  - Diabetes, etc...

Potential Nutrition Related Side Effects of Cancer and Cancer Treatment

- Nausea/Vomiting/Constipation/Diarrhea
- Poor Appetite
- Weight Loss
- Weight Gain
- Taste Changes/Dry Mouth
- Chewing or Swallowing Difficulties
- Fatigue!

Nutrition Management of Diarrhea



- **Variety of causes with NETs**
- Replace fluid and electrolytes
  - Sip fluids: 8 to 10 cups of clear liquids a day
  - Potassium: baked potato, coconut water, soy milk, melon, cooked spinach, banana, avocado
  - Sodium: broth, saltines, pretzels
- Decrease demands on the GI tract
  - Eat small, frequent meals and snacks
  - Chew your food well
  - Avoid GI irritants: magnesium, caffeine, extreme hot/cold
  - Avoid fatty and greasy foods
  - Avoid concentrated sweets, sugar alcohols

Nutrition Management of Diarrhea (Cont)

- Limit lactose
  - Yogurt, lactose free milk may be tolerated
  - Add Dairy Digestive/Lactaid® or non-dairy alternatives
- Avoid gas-forming foods & high ***insoluble fiber***
  - Gas forming foods include onions, cabbage, broccoli, cauliflower, soft drinks, beans and chewing gum
  - Insoluble fiber acts like a broom, causing food to pass more quickly through the digestive system → increasing loose stools:
    - Examples of foods high in insoluble fiber: raw, unpeeled fruits and vegetables, dried fruits, whole grain breads and cereals, nuts and seeds

Nutrition Management of Diarrhea (Cont)

- Choose low fiber/low residue foods
  - Examples: white rice (congee), peeled potatoes, cream of wheat, select cooked vegetables and fruits

- Increase ***soluble*** **fiber**
  - Attracts water and turns to gel slowing down digestion → decreasing loose stools:
    - Examples: oat bran, barley, bananas, applesauce, cooked carrots, Benefiber® (soluble fiber supplement)

Nutrition Management of Diarrhea (Cont)

- Depending on the cause of diarrhea additional medications/supplements that may be helpful:
  - Malabsorption from chronic octreotide treatment or after a Whipple surgery → Pancreatic enzymes (digestive enzymes)
  - Bile acid malabsorption after gall bladder removal or removal of the ileum (part of the small intestine) → Cholestyramine (bile acids binder)
  - Bacterial overgrowth, antibiotic related or infectious diarrhea → Probiotics (helpful bacteria)
  - Anti-diarrheal medications…***take before meals.***

Carcinoid Syndrome & Diet

- Symptoms include flushing, sweating wheezing, diarrhea, abdominal pain…
- Common triggers:
  - Hormone secretions
  - Certain foods
- ***If you have symptoms – diet changes may help.***
  - If you dont have symptoms – follow the AICR guidelines

Carcinoid Syndrome & Diet (cont)

- You are unique!
  - Diet & strategies need to be individualized.
  - Track your symptoms so you know what works & what doesn't.
- Most common reported food triggers:
  - Large meals
  - Alcohol
  - Tomatoes
  - Fatty meals
  - Coffee/caffeine containing foods
  - Very spicy foods
  - Foods that contain high amounts of amines

Amine Content of Foods

Vasoactive or pressor amines (precursors for adrenaline)

FOODS WITH THE HIGHEST AMOUNTS:

(Most likely triggers of carcinoid symptoms):

- **Aged cheeses**
- **Alcohol**
- **Smoked, salted fish and meats**
- **Yeast extracts (in many processed foods), Brewer's yeast**
- **Fermented foods (tofu, miso, sauerkraut)**

FOODS WITH MODERATE AMOUNTS:

(May triggers carcinoid symptoms):

- **Caffeine (large amounts), coffee, colas**
- **Chocolate (especially dark)**
- **Peanuts, brazil nuts, coconut**
- **Avocado, banana, raspberries**
- **Most soybean products (soy sauce, tempeh)**
- **Fava beans (aka broad beans)**

Amine Content of Foods

Vasoactive or pressor amines (precursors for adrenaline)

Foods low in amines (unlikely to trigger carcinoid symptoms):

- Fresh lean meats, poultry & fish
- Fresh lunch meats – fresh roasted turkey
- Most vegetables & fruits
- Fresh boiled soybeans (edamame), soy milk
- Ricotta cheese, mozzarella cheese, cottage cheese, yogurt & cream cheese

Carcinoid Syndrome & Diet (cont)

With Symptoms:

- Smaller meals, avoid trigger foods/fatty meals
- Increase protein intake to provide additional tryptophan :
  - Sources: fish, poultry, lean meats, beans, eggs/ whites, low fat dairy, whey protein powder, etc…
- Add 25-50 mg niacin (vitamin B3) per day to avoid deficiency (can be in a multivitamin)
- Reduce dietary sources of amines
- Monitor vitamin B12 levels every 6 – 12 months on long term octreotide therapy

Carcinoid Syndrome - Sample Meal Plan

Breakfast: *Oatmeal mixed with chopped almonds, cinnamon and unsweetened applesauce, herbal tea.*

Lunch: Leftovers - *Roasted free range chicken breast and vegetables with brown rice.*

Dinner: *Baked wild caught salmon with sweet potato and vegetables.*

Snacks (1-3): *plain Greek yogurt with blueberries or crackers with humus or sliced pears with almond butter or a hard-boiled free range egg.*

Sip water throughout the day.

Summary

- Good nutrition is essential to health.
- Nutrition is a vital component of treatment tolerance, side effect management and quality of life for NET patients.
- Ask to be referred to a Registered Dietitians (RD) that specialize in Oncology Nutrition (CSO) to help you optimize your nutritional status.

Resources

Recommended Websites

http://www.caringforcarcinoid.org
http://www.carcinoid.org
http://www.oncologynutrition.org
http://www.aicr.org
http://www.cancerrd.com
http://cc.ucsf.edu/crc
http://www.consumerlab.com

Recommended Books/Cookbooks

- The Cancer Fighting Kitchen – R Katz, 2009
- The Longevity Kitchen - R Katz, 2013
- The Cancer Wellness Cookbook – K Mathai, 2014

University of California
San Francisco

advancing health worldwide™

University of California
San Francisco

advancing health worldwide™