Nutritional conference

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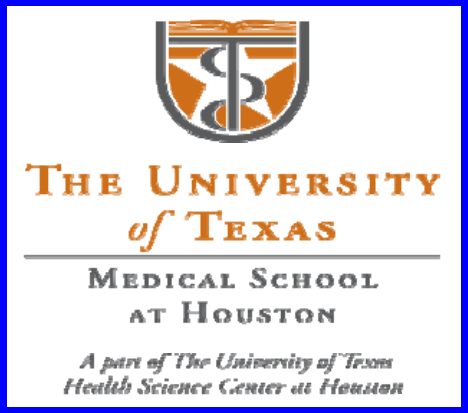

Esophageal Cancer

Protective	Carcinogenic
Fruits and vegetables (decreses nitrosamines production –direct DNA damage- and modulates endogenous antioxidant systems. Fibers sequestrates procarcinogens)	Alcohol (acetaldehyde –likely carcinogenic- ,related micronutrient deficiency, direct hepatotoxicity, reaction with MTHFR and subsequent DNA pathway antagonization)
Green tea (epigallocatechin gallate: anti-oxidant, anti-inflammatory, anti-mutagenic, anti-angiogenic, anti-bacterial/viral -inhibits H pylori-, anti-aging)	Red meat (heterocyclic amines, production of nitrosamines - possible carcinogens-)
Vitamin C	Dietary fat (heterocyclic amines, possible carcinogen)
Zinc (reduces COX 2 overproduction)	Simple carbohydrate (production of nitrosamines - possible carcinogen)
	Cigarette and contaminated food (Polycyclic aromatic hydrocarbons)
	Smoked, broiled, charred foods (nitrates)

Gastric Cancer

Protective	**Carcinogenic**
Wine, vitamin C (control of H pylori growth)	Alcohol
Fruit and vegetables	Simple carbohydrates
Green tea	Red meat
	Pickled and other salty foods (increase oxidative stress and lipid peroxidation)

Colorectal cancer

Protective	**Carcinogenic**
Calcium (decreases epithelial hyperproliferation induced by bile and fatty acids)	Dietary fat (controversial)
Vitamin D (modulates effects of calcium)	
Folate (protective but if cancer is present may increase risk)	
Selenium (enhances glutathione peroxidase and promotes apoptosis)	

Weight loss in gastrointestinal cancer

- Prevalence of weight loss and malnutrition in GI cancer is 40 to 87 %.
- The presence of pre-treatment weight loss in patients with GI cancer is a poor prognostic factor
- Loss of lean mass in GI cancer have increase complications associated with surgery

Pathophysiology

- Malabsortion, obstruction, diarrhea and vomiting related with GI cancers
- Production of cytokines can cause anorexia and altered metabolism
- Side effects from chemotherapy or radiation therapy
- Fatigue, depression, anxiety and pain

Cancer cachexia

- Clinical features include tissue wasting, anorexia, skeletal muscle atrophy, anergy, anemia, hypoalbuminemia unresponsive to aggressive nutrition intervention.
- Cytokines especially TNF, IFN ɣ and IL-1 and IL-6 are related with anorexia, early satiety, and derangement of metabolism of protein, carbohydrate and fat.
- May be seen in early stages of the cancer
- Early recognition and intervention is important when there is plan to treat underlying cancer. Patient may lose weight despite supraphysiologic calories.

Specialized nutrition support (SNS)

- Parenteral nutrition and enteral nutrition are associated with improvement of nitrogen balance and weight gain.
- Weight gain is mainly body fat and have little improvement in patient comfort and sense of well being.
- No beneficial effect on serum proteins
- SNS should be reserved to patient with moderate or severe malnourishment due to the cancer or its therapy and are unable to meet their nutritional requirement orally for more than 7-8 days AND active therapy is planned to treat the cancer.
- PN should be avoided if life expectancy is less than 40-60 days.

Perioperative nutrition support

- EN is indicated in patients unable to meet their nutritional requirement orally for 7-10 days whose GI tract is intact. It is more physiologic, has fewer complications and is less expensive than PN.

- PN, conflicting data. It increases infection rate, no benefit in significantly malnourished GI cancer patients and no improvement is survival.

Perioperative feeding considerations

- GI functions returns rapidly post op and intraluminal nutrients promote bowel hypertrophy and healing of the anastomosis.
- Even in the absence of peristalsis, the small bowel can absorb nutrients rapidly after surgery.
- Early enteral nutrition improves wound healing, gut immune system and gut function.
- Enteral feeding is occasionally associated with nausea, vomiting, colic and anorexia.
- Intraoperative placement of feeding tube should be considered in patient who are malnourished and poor oral intake after surgery is anticipated (7-14 days)

Nutrition support during chemotherapy

- Routine use of PN does not improve outcome in patient on chemo for GI cancer
- PN and EN do have a role in treatment of malnutrition secondary to the chemotherapy but should be reserved in whom treatment options remain and who are clearly malnourish and are at risk for worsening malnutrition.

Immunonutrition (EN supplemented with micro or macronutrients)

- Immune enhancing nutrients that have been explored in GI cancer include omega-3 fatty acids, glutamine, arginine, and nucleic acids.
- Glutamine, substract for rapidly proliferating cells, improves nitrogen balance in patient colorectal cancer
- omega-3 fatty acids helps to stabilize weight in patients with pancreatic cancer, increases leukotriene 5 levels and decreses TNF levels
- Arginine enhances immune response and decreases incidence of infections in patient with GI surgeries
- Nucleotides seem to stimulate immune function (no effect on survival in one study)
- Meta-analysis have demostrated improved outcomes with the use of immunonutrition perioperatively in patients undergoing major GI resections

Nutrition and gastrointestinal cancer prevention

- Obesity is a risk factor for gastrointestinal cancers. Diet should be directed to maintain healthy weight.
- Calcium: binds to secondary bile acids and ionized fatty acids that stimulates epithelial cell proliferation. Vit D is (modulates calcium action) needed for efficacy of polyp preventions.
- Fibers: sequester potencial carcinogens and bile acids, decrease transit time and promote the production of short chain fatty acids in the colon
- Green tea: anti-oxidant, anti-inflammatory, anti-mutagenic, anti-angiogenic, anti-bacterial/viral (inhibits H pylori), anti-aging. Prevents esophageal, gastric, hepatic and colorectal cancers.

Take home message

- The use of SNS in cancer should be reserved for those with moderate or severe malnourishment as a result of cancer or its therapy, or are unable to meet their nutritional requirement orally for more than 7-10 days in whom active therapy is planned to treat the underlying cancer.
- Preoperative planning for postoperative nutrition care, feeding method and access is crucial.

Reference

- Maureen Huhmann and David August. Chapter 7 Nutrition in Gastrointestinal Cancer. Nutrition and Gastrointestinal Disease, Mark H. DeLegge.

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ThAnKs!!!