**Module 5 Questions: Oncology**

 **I. Lab Values**

 **A. What are some causes of elevated renal labs (BUN, Cr, Na, K, P, and Mg) in oncology patients?**

Possible medication interaction, increased inflammation and dehydration due to cancer.

B. **What laboratory values would classify a patient as neutropenic?**

Neutropenia can be classified as mild, moderate or severe based on absolute neutrophil count.

**Mild:** ANC between 1,000 cells/mm3 and 1,500 cells/mm3

**Moderate**: ANC between 500 cells/mm3 and 1,000 cells/mm3

**Severe**: ANC less than 500 cells/mm3

**II. Medical/Surgical Treatment**

**List the nutritional problems associated with radiation therapy and provide recommendations to alleviate these problems.**

Constipation, vomiting, difficulty swallowing, extreme fatigue, difficulty masticating.

**Constipation-** Try to eat at the same times each day, drink 8 to 10 cups of liquid each day, high-calorie, high-protein, fiber-containing liquid supplement. Limit drinks and foods that cause gas if it becomes a problem.

 **Poor appetite** - Eat several snacks throughout the day, rather than 3 large meals. Avoid liquids with meals, or take only small sips of liquids to keep from feeling full early. Keep high-calorie, high-protein snacks on hand. Try hard-cooked eggs, peanut butter, cheese, ice cream, granola bars, liquid nutritional supplements, puddings, nuts, and canned tuna or chicken, or trail mix.

**Issues related to mouth dryness and thick saliva** - Eat soft, moist foods that are cool or at room temperature. Try blenderized fruits and vegetables, soft-cooked chicken and fish, well-thinned cereals, popsicles, smoothies, and slushies. Avoid foods that stick to the roof of the mouth like peanut butter or soft bread. Moisten foods with broth, soup, sauces, gravy, yogurt, or creams.

**Swallowing problem**- puree food, thicken liquids, gelatin and high-calorie and high-protein liquids.

**Nausea and vomiting**- sip on cool or room temperature liquids in small amounts. Avoid high fat, greasy, spicy, strong odors or overly sweet foods.

**Fatigue -**keep easy-to-prepare, easy-to -eat foods, drink plenty of healthy fluid, to keep the digestive system moving.

**B. Discuss the different types of bone marrow transplant (autologous, allogenic). Which of these puts a patient at risk for Graft Versus Host Disease (GVHD)? Describe the nutritional implications of GVHD.**

Autologous In this type of transplant, the patient own stem cells are removed, or harvested, from the blood before treatment is administered that destroys them. The stem cells are removed from either the bone marrow or blood, and then frozen. One advantage of autologous stem cell transplant is patients get their own cells back. Allogenic the stem cells come from a matched related or unrelated donor. If patient don’t have a good match in their family, a donor might be found in the general public through a national registry. This is sometimes called a MUD (matched unrelated donor) transplant. Transplants with a MUD are usually riskier than those with a relative who is a good match. The allogenic transplant put the patient at risk for graft-versus-host disease (GVHD) a donor’s cell develops into a white cell in the patient’s bone marrow and attacks it due to it being foreign -Nutritional implications of GVHD. After transplant the patient is often neutropenic. Poor oral intake, gastroenteritis, abdominal pain, nausea, vomiting, secretory diarrhea, mouth pain, mouth ulcers, infection, weight loss, shortness of breath.

 **III.** **A. Discuss the use of the following classifications of drugs with cancer patients.**

**Include effect of the drug on PO intake and nutrient absorption and utilization.**

**1. Antineoplastics**

**2. Antiemetics**

**3. Appetite Stimulants**

**4. Pancreatic enzyme supplementation**

**IV. Nutritional Management**

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| --- | --- | --- |
| Drugs Classification | Effect of drug on PO intake | Nutrient absorption and utilization |
| Antineoplastics | Poor intake due to nausea and vomiting  | Altered taste anorexia, impair digestion, food aversion, |
| Antiemetics | Increase PO intake |  |
| Appetite Stimulants | Increase appetite weight gain, fluid retention |  |
| Pancreatic enzyme supplementation | Increase PO intake | Prevent malabsorption  |
|  |  |  |

**A. Describe the nutritional management of the following problems that commonly occur in cancer patients.**

**1. Dysgeusia-** eat cold foods, smaller more frequent meals avoid too much season in meal, add lemon or lime to water and suck on sugar free candy as needed.

**2. Oral and esophageal mucositis-** eat foods that are soft, moist and easy to swallow include high calorie and high protein foods if weight loss is an issue. Avoid strong flavored, acidic, spicy food. Drink commercial supplement for nutrition support**.**

**3. Nausea-** sip on cool or room temperature liquids in small amounts. Avoid strong odors or overly sweet foods.

**4. Diarrhea Drug Therapy -** Consume clear liquids, avoid high intake of fibers, raw fruits, vegetables. Consume applesauce, banana, toast and white rice.

**B. What is an entero-cutaneous fistula? What nutritional intervention(s) would be indicated?** An entero-cutaneous fistula (ECF) is an abnormal connection that develops between the intestinal tract or stomach and the skin. Enter-cutaneous fistulas (ECFs) can cause contents of the intestines or stomach to leak through a wound or opening in the skin. The management of Enterocutaneous fistula (ECF) is challenging. It remains associated with morbidity and mortality, despite advancements in medical and surgical therapies. Early nutritional support using parenteral, enteral or fystuloclysis routs is essential to reverse catabolism and replace nutrients, fluid and electrolyte losses.

**C. Describe 2 ways of providing nutrition support to a patient with a gastrointestinal obstruction.**

Total parenteral nutrition (TPN) is indicated with gastric duodenal or small bowel fistula. Oral intake is discontinued when fistula output is high because it stimulates further losses of fluids, electrolytes, and protein through the fistula. TPN is administered centrally or peripherally by bypassing the digestive tract and goes directly to the vein for total bowel rest.

Enteral is the main choice and can be delivered various routes. However, it varies according to the site of the obstruction and the function of the GI tract. A percutaneous endoscopic jejunostomy (PEJ) or percutaneous endoscopic gastrostomy may be indicated.

**D. When is central parenteral nutrition appropriate for an oncology patient? When would the use of central parenteral nutrition be contraindicated in this patient population?**

Central parenteral nutrition is appropriate when the gastrointestinal tract fail to function properly. It allows for high calorie PN formula and greater osmolality. Central parenteral nutrition would be contraindicated in a patient with functional GI tract, poor prognosis, sepsis, electrolyte imbalance and hemodynamic instability.

**E. What is the primary goal of palliative care? What is the role of nutrition in palliative care of oncology patients?**

 **The goals are:**

* Relieve pain and other symptoms
* Address your emotional and spiritual concerns, and those of your caregivers
* Coordinate your care
* Improve your quality of life during your illness

Nutrition in palliative care focus on improving quality of life. It is important to address issues of food and feeding at this time to assist in the management of troublesome symptoms as well as to enhance the remaining life.

**Sources**

BADRASAWI M, SHAHAR S, SAGAP I. Nutritional Management in Enterocutaneous Fistula. What is the evidence? The Malaysian Journal of Medical Sciences : MJMS. 2015; 22(4):6-16.

Escott-Stump, S, Nutrition and Diagnosis Related care 8 (e). (2015). Wolters Kluwer Health /Lippiincott Williams & Wilkins

https://www.cancer.org/treatment/survivorship-during-and-after-treatment/staying-active/nutrition/nutrition-during-treatment/constipation.html

<https://www.ucsfhealth.org/conditions/enterocutaneous_fistula/>

<https://www.g-pact.org/chronic-intestinal-pseudo-obstruction/nutritional-support/intravenous-nutrition/tpn>

<https://www.webmd.com/palliative-care/the-palliative-care-team#1>

https://www.ncbi.nlm.nih.gov/pubmed/19966682