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Clinical Module 5 -- Oncology

Module 5 Questions:

I. Lab Values

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

Lab	Cause of elevation
BUN	Chemotherapy drugs can cause some damage to the kidneys or reduce how the kidneys filter creatinine from the bloodstream.
Creatinine	Chemotherapy drugs can cause some damage to the kidneys or reduce how the kidneys filter creatinine from the bloodstream.
Sodium	Vomiting and/or diarrhea alter values.
Potassium	Vomiting and/or diarrhea alter values.
Phosphate	Vomiting and/or diarrhea alter values.
Magnesium	Vomiting and/or diarrhea alter values.

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

The following neutrophil counts determines the severity of a patient's neutropenia:

Mild: 1000 – 1500/ μ l

Moderate: 500 – 1000/ μ l

Severe: <500/ μ l

II. Medical/Surgical Treatment

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

Nutritional Problems	Recommendations
Nausea	Feed patients ice chips, sips of ginger ale, tea, or candied dried ginger. Eat small meals and drink liquids between meals. Do not eat any greasy, spicy, and fatty foods, foods with strong odors, and excessively sweet foods. Consume small snacks and drink plenty of water.

Vomiting	Consume clear liquids (flat beverages). Consume small portions and avoid spicy or acidic foods. Consume liquids between meals. Low fat.
Changes in taste	Use plastic utensils and plates. Consume sugar-free lemon drops, gum, or mints. Instead of canned items, consume frozen fruits and vegetables. Brush and rinse mouth frequently. Consume foods that are cold or at room-temperature.
Dry mouth	Use sugar-free gum, candies, gravies, and sauces. Drink a lot of fluids, consume soups and stews. Consume ice chips and popsicles. Avoid salty foods. Tart tasting foods produce saliva. Avoid caffeine and alcohol.
Trouble swallowing	Consume moist foods, add sauces and gravies. Pureed foods may be better tolerated. Sip fluids throughout the meal. Have patient tilt their heads back. Use thickeners for thin liquids. Use a straw. Avoid very hot or very cold foods. Chew sugar-free gum or candy.

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.

Bone marrow transplantation is now called Hematopoietic Stem Cell Transplantation (HSCT). Autologous bone marrow transplantation is when the patient's own cells are harvested, frozen, and then transplanted back once the patient has undergone chemotherapy. Allogenic bone marrow transplantation is when the cells used are from a sibling or a donor who the patient has matched with. The goal is for the cells to fight off the cancerous cells.

Individuals who undergo allogenic transplantation are at risk of developing Graft Versus Host Disease (GVHD). In GVHD, the donor bone marrow cells attack both the cancerous and healthy cells, tissues, and/or organs of the recipient.

Nutritional implications of GVHD include diarrhea, abdominal pain, cramps, nausea, mouth sores, and/or heartburn. To combat these nutrition related problems, the patient should consume foods that are easily digestible when it comes to diarrhea, abdominal pain, cramps, and nausea. For those with mouth

sores, foods with a softer consistency should be given. Lastly, for those with heartburn, smaller meals should be given.

III. Drug Therapy

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.

Drug Classification	Use for cancer patients	Effect on PO intake	Effect on nutrient absorption and utilization
Antineoplastics	Used for chemotherapy	Mouth sores, nausea, vomiting, loss of appetite, diarrhea, constipation	N/A
Antiemetics	Help prevent nausea and vomiting	Can cause dryness in the mouth and throat as well as constipation.	N/A
Appetite Stimulants	Stimulate appetite	May cause nausea and dyspepsia (indigestion)	Take suspension with high fat meal since it may increase blood levels. Food is not needed with tablet or concentrated suspension. Take with food to reduce GI distress.
Pancreatic enzyme supplementation	Assists in macronutrient digestion	May cause nausea, vomiting, diarrhea, greasy stools, gas, bloating, constipation, rectal irritation, or weight loss.	N/A

IV. Nutritional Management

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

1. **Dysgeusia** – Make food more appealing. Serve food warm with lots of colors and garnishes. Acidic foods may stimulate taste buds. Use a lot of seasoning on foods and incorporate sauces. Fresh vegetables, flavored snacks, special breads, olives, and pickles tend to be favorable.

2. **Oral and esophageal mucositis** – Avoid acidic juices, overly salty foods, soups, dry toast, and grainy breads and cereals. Prescribe a mechanical soft diet (ground meats, chopped food) puree foods may be needed. Cold foods may help symptoms. Sauces may also help patient swallow the food easily.

3. **Nausea** – Feed patients ice chips, sips of ginger ale, tea, or candied dried ginger. Eat small meals and drink liquids between meals. Do not eat any greasy, spicy, and fatty foods, foods with strong odors, and excessively sweet foods. Consume small snacks and drink plenty of water.

4. **Diarrhea** – Watch fluid intake. Change amount of fiber in the diet. Liquids with sodium and potassium (Gatorade or Pedialyte). Serve foods cold or in room temperature. If the patient is lactose intolerant, make sure to note this and avoid foods containing lactose. Consume six small meals a day. Avoid fatty, spicy, and acidic foods, foods containing caffeine, gas-forming vegetables, and carbonated beverages. Foods that may be tolerated are plain rice, potatoes, eggs, skinless chicken, or mildly flavored fish. Limit sugar substitutes. Psyllium and glutamine may be helpful.

B. What is an entero-cutaneous fistula? What nutritional intervention(s) would be indicated?

An entero-cutaneous fistula is an abnormal connection that develops between the GI tract and the skin. Because of this abnormal connection, the contents of the intestines or stomach can leak through the skin. This condition is rare but needs to be monitored very closely.

For someone with an entero-cutaneous fistula, enteral or parenteral nutrition may be needed. If the fistula is near the center of the body, a feeding tube needs to be placed. However, if the fistula is away from the center of the body, it is possible for the patient to be fed by mouth or through a gastric tube. If any sort of feeding tube is placed, it is important to make sure that infections do not happen. The patient needs to consume plenty of electrolytes.

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

For a patient with a gastrointestinal obstruction, a PEG (percutaneous endoscopic gastrostomy) or PEJ (percutaneous endoscopic jejunostomy) is placed in order to provide nutrition to the patient. The placement of these feeding tubes depends on where the obstruction is located. The PEG tube is placed in the stomach while the PEJ tube is placed in the jejunum (small intestine). Feeding tubes help patients get the proper amount of nutrients needed.

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 also known as total parenteral nutrition. In enteral nutrition, a feeding tube is placed in the stomach or the small intestine whereas in parenteral nutrition the nutrients are given through the veins. Parenteral nutrition is used when the nutrients cannot be broken down in the GI tract. This can be because of a number of reasons: malfunctioning GI tract, absorption problems, mechanical obstructions, severe bleeding, severe diarrhea, intractable vomiting, fistulas in the GI tract, or inflammation anywhere in the GI tract. For most patient already getting IV therapies, a central catheter is already available. For those without central catheters, a peripheral catheter can be placed. However, if the GI tract is working, enteral nutrition is preferred.

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

The primary goal of palliative care is to ensure that the patient is physically and emotionally comfortable. Palliative care also ensures that the patient has nothing to worry about and that everything that they could possibly need is taken care of.

The goal of nutrition in palliative care is to ensure that the patient is to reduce physical and emotional distress since food has a positive effect. Diets can be liberalized depending on the patient's wishes.