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Cancer Case Study 31

1. Lymphoma is a blood cancer of the lymph nodes.

4. Chemotherapy treats malignant cells by using lethal chemotherapeutic agents to kill or slow the growth of malignant cells. It destroys malignant cells that may remain after radiation therapy or surgery. It also destroys the malignant cells that spread to other parts of the body. It can also decrease the size of the tumor before the radiation therapy. Radiation therapy also slows down and kills malignant cells by using high-energy radiation such as X-rays, gamma rays and charged particles. Radiation therapies can be used in two therapies such as external-beam radiation and internal radiation. It kills malignant cells by directly destroying the malignant cell's DNA or by influencing development of free radicals within cells. It can be used alone of in combination with surgery or other therapies. It can also relieve symptoms and reduce suffering. Both therapies can eliminate a tumor and prevent cancer recurrence (Nelms, Sucher, Long & Lacey, 2011).

5 a. Radiation therapy affects continually proliferating cells such as epithelial cells, bone marrow cells, lymph tissue and hair cells. Chemotherapy also affects continual proliferation cells such as the epithelial lining of the GI tract and hair cells (Nelms, Sucher, Long & Lacey, 2011).

5b. Common side effects of chemotherapy is fatigue, pain because damage to nerves, hair loss, nausea and vomiting, stomatitis/xerostomia, altered taste, early satiety, diarrhea, mal-absorption, constipation. For radiation therapy, sides are abdominal pain, diarrhea, mal-absorption, and lactose intolerance in the pelvic region. In the oral/cervical region, it may result to side effects such as stomatitis, mucositis, xerostomia, dysgeusia and odynophagia (Nelms, Sucher, Long & Lacey, 2011).

9. 54.5kg/(1.69m)^2 = 19.6 BMI (healthy weight)
54.5kg/59kg*100 = 92.3 % Usual Body Weight
4.5kg/59kg*100 = 7.62% Weight Change

BMI uses height and weight to indicate obesity but it doesn't estimate body composition, which can be used to see if a patient is at nutritional risk and their overall mortality. The usual body weight is used to distinguish if a patient is at nutritional risk or has health complications by indicating their amount of weight loss or change over a period of time. Percent Usual Body Weight is more appropriate to use in determining nutritional risk for Ms. Mitchell. According to General guideline for significant weight loss, she has severe weight loss because it's greater than 7.5% within 3 months.

12. 1.5g protein*54.5kg = 81.75g protein requirements

13. 655.1 + 9.6*54.5kg + 1.9*167.64 - 4.7*21

655.1 + 523.2 + 318.5 – 98.7 = 1398
Activity factor (1.2)*Injury factor (1.0) = 1.2
Stress factor = 1.2
1398*1.2 = 1678 calories intake requirements
I used the Harris-Benedict Equation.

14.

75 cal 3.1g protein for 1 slice of dry toast
0 cal, 0 protein for 1 tea bag
137 cal, 2.3g protein ½ c ice cream
32 cal, .1g protein ¼ c fruit cocktail
47 cal, 8.8g protein 1 oz of chicken
128 cal, .6g protein 2 tbsp of mashed potatoes
12 cal 1.2g protein ½ c of jello
0 cal, 0g protein for 1 tea bag

Total : 399 calories, 14.9g protein from 24-hour recall
Looking at her protein needs of 81.75g and energy needs of 1678 calories, she is meeting only 18% of required protein intake and 23% of her calorie intake recommended needs.

18. From her illness, certain side effects will affect her nutrition status while receiving treatment such as diarrhea, fatigue, mouth sores, nausea or vomiting, and decreased RBC. Other factors can play a role such as reduced intake, early satiety, altered taste/smell and psychological factors. Also increased energy expenditure can caused side effects such as increase fuel consumption by tumor, hormonal influences and altered metabolism. Mal-absorption can be a factor because GI resections (Nelms, Sucher, Long & Lacey, 2011).

19. Physical symptoms such as respirations are shallow; dry mouth, appetite has decreased, and flu like symptoms, which all can play a role in inadequate calorie intake.

20. Problems such as inadequate oral food/beverage intake, involuntary weight loss, inadequate energy intake and protein needs.

21. Visceral proteins assessments such as albumin, pre-albumin, and transferrin, Retinol binding protein, fibronectin, insulin-like growth hormone, the C-reactive protein (CRP) can assess protein status (Nelms, Sucher, Long & Lacey, 2011).

a. Albumin is not an adequate test reliable in the acute setting in the overall indication of protein and nutrition status due to the effects of disease, hydration and more and it has a long half-life of 20 days. Transferrin has a shorter half-life of 8-10 days, which can serve as a protein indicator status due to the sensitivity to acute changes in protein status. Pre-albumin has a short half-life of 2 days, which is a great indicator risk of malnutrition. RBP is one of the most sensitive protein indicators because of its 12-hour half-life and small body pool. FN and IGF-1 are also reflect acute changes. CRP is the most sensitive indicator of inflammation due to the increase in serum concentration of 1000x fold. It notices a patient's positive response to inflammation from a decline of nutritional status to cachexia (Nelms, Sucher, Long & Lacey, 2011).

b. Because certain diseases and stress affects the result of the test, an albumin test wouldn't be used. A Transferrin test is about 8-10 days, which still long. Prealbumin, FN AND IGF-1 are great indicator of nutritional status and protein status for patients under stress (Nelms, Sucher, Long & Lacey, 2011).

c. Low Albumin, Low Total Protein Intake, High bilirubin, High WBC, Low HGB, Low HCT, low MCV, High RETIC, low MCHC, and Low ferritin. Additional testing such as Prealbumin, FN, IGF-1 and GI tract assessment would be great nutrition assessment labs (Nelms, Sucher, Long & Lacey, 2011).

25. PES

1. Inadequate energy intake related to decrease appetite and symptoms of feeling fatigue as evidenced by only meeting 23% of energy recommended intake amount of 1678 calories intake.
2. Weight loss related to inadequate protein intake evidenced by low 5.5 L of total protein levels on the lab assessment and only meeting 18% of protein recommendation intake.

26. Increase protein intake to maintain and achieve optimal body weight. Interventions would include adding powdered milk to any beverage, adding liquid egg substitutes to shake, soups, vegetables, adding nuts, nut butter, chopped meats cooked eggs, cheese. So it would be best to increase nutrient density without increasing the volume due to the loss of appetite. Also the use of a protein modular such as Promod or Beneprotein can be added in foods (Nelms, Sucher, Long & Lacey, 2011)

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Increase appetite to reverse downward trend of nutrition status by increasing nutrient density of energy content without changing the volume of the meal. Interventions could be to add butter or margarine to cooked cereals, soups vegetable and casseroles. Add jam, jelly, or honey to bread or crackers. Use cream or whole milk in soup and other dishes. Add sour cream or yogurt to foods. Add nut butter or cream cheese to raw vegetables, bread and crackers. Also carbohydrate modular such as Polycose, can be used, which doesn't alter taste of food (Nelms, Sucher, Long & Lacey, 2011)

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Reference:

Nelms, M., Sucher, K., Long, S., & Lacey, K. (2011). *Nutrition therapy and pathophysiology.* (2nd ed.). Belmont: Cengage Learning.