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KNH 413

Professor Matuszak

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Case Study 3: Depression: Drug-Nutrient Interaction

1. What is depression?
   1. Depression is an illness that involves the body, mood, and thoughts. It affects the way a person eats and sleeps, the way one feels about themselves, and the way one thinks about things. Almost 10% of the population will experience a depressive disorder at any one time and more than 71 million prescriptions have been written for depressive medications. Symptoms may include fatigue, feelings of worthlessness, being isolate, thoughts of suicide, and distorted views of oneself. (Nelms, 2011, page 632).
2. Dr. Byrd has decided to treat Ms. Geitl with Zoloft, a selective serotonin reuptake inhibitor (SSRI). Are there any pertinent nutritional considerations when using this medication?
   1. When using this medication, nutritional considerations are minimal. Symptoms may include nausea or loss of appetite, so taking the medication with food or before bedtime may decrease chances of nausea. Individuals on Zoloft should avoid alcohol. Herbal supplementation of St. John’s Wart may have negative side effects due to the high levels of serotonin, so a physician should first be consulted. (MedNet, 2015).
3. How do selective serotonin reuptake inhibitors (SSRIs) work?
   1. Selective serotonin reuptake inhibitors work by easing symptoms of moderate to severe depression with minimal side effects through blocking the reabsorption of the neurotransmitter serotonin in the brain. Changing the balance of serotonin appears to help brain cells send and receive chemical messages, which in turn boosts mood. (MayoClinic, 2010).
4. During the diet history, you ask Ms. Geitl if she uses any OTC vitamins, minerals, or herbal supplements. She tells you her mother suggested she try Hypericum perforatum (St. John’s wort) because in Germany it is prescribed to treat depression. Ms. Geitle did as her mother suggested, as it is available without prescription in the U.S. What is St. John’s wort?
   1. St. John’s wort is an herbal supplementation from a flower native to Europe that is often used to treat depression, anxiety, or other sleep disorders. Studies are still being completed to determine the supplement’s effectiveness. It is banned in some countries due to the negative complications with other medications. (NIH, 2011).
5. How is St. John’s wort used in the US?
   1. St. John’s wort was first used in the US for its antibacterial and antiviral properties. It was originally applied to skin to treat wounds. Today, the supplement is used to treat depression, anxiety, and other sleep disorders, however it is not approved or regulated by the FDA as a treatment for these disorders.

(Digitale, 2007).

1. How does St. John’s wort work as an antidepressant?
   1. St. John’s wort antidepressant mechanism is not well understood quite yet. Hyperforin and hypericin are two compounds in the supplement that may have an impact on depression. The antidepressant effect is thought to result from the selective inhibition of serotonin, dopamine, and norepinephrine reuptake in the central nervous system.

(Digitale, 2007).

1. Does St. John’s wort have any side effects?
   1. Side effects of St. John’s wort may include: damage to reproductive eggs, decreased sperm motility, headache, fatigue, and gastrointestinal upset. Other rare side effects may include photosensitivity or manic symptoms to those predisposed patients.

(Digitale, 2007).

1. How is St. John’s wort regulated in the U.S?
   1. St. John’s wort is not currently regulated nor approved by the FDA in the United States. It is classified as a dietary supplement.

(Digitale, 2007).

1. How is St. John’s wort used in Europe?
   1. St. John’s wort is commonly used to treat depression, anxiety, and other sleep related disorders in Europe. It is typically a prescription drug used in Europe and has been used for centuries to treat mental disorders. (Digitale, 2007).
2. Why do you think people are interested in alternative medicine and herbal treatments?
   1. I believe that people are interested in alternative medicine and herbal treatments because many people are under the impression that herbal or “natural” supplementation is healthier for them than prescription drugs. Others may believe that the drug industry works without considerations for the individuals and are more focused on the money that the drugs produce.
3. Because Ms. Geitl is ambulatory, you are able to measure her height and weight. She is 5’11” tall and weighs 160 pounds. You also determine that she is of medium frame. Because Ms. Geitl is from Germany, she is used to reporting her weight in kilograms and her height in centimeters. Convert her height and weight to metric numbers.
   1. Weight: 160 lb./ 2.2 = **72.72 kg**
   2. Height: 60 in. + 11 in. = 71 inches x 2.54 = **180.34 cm**
4. Is Ms. Geitl’s recent weight loss anything to be worried about?
   1. Ms. Geitl’s recent weight loss was 3% of her usually body weight over the last three months. This weight loss is not significant enough to worry about, but should still be monitored.
      1. % UBW = 160lbs./165lbs. x 100 = **97%**
      2. 100% - 97% = **3% loss of usual body weight**
5. Because Ms. Geitl is alert and cooperative, you ask her to complete a Patient-Generated Subjective Global Assessment of Nutritional Status. What is her score? (See Appendix I).

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| --- | --- |
| **Sections** |  |
| Box 1 | 1  Current weight: 72.72 kg  Current height: 180.34 cm  One month ago I weighed about: 73.64 kg  Six months ago I weighed about: 75kg  During the past two weeks my weight has: decreased |
| Box 2 | 1  Food intake is less than usual. Now taking normal food but less than normal amount. |
| Box 3 | 1  Symptoms: No appetite, just did not feel like eating. |
| Box 4 | 3  Activities and Function: Not feeling up to most things, but in bed or chair less than half the day. |
| Weight loss section | 0 |
| Disease section | 0 |
| Metabolic section | 0 |
| Physical section | 0 |
| **Total:** | 6 |
| **SGA Ratings:**  A = Well nourished  B = Moderately (or suspected of being malnourished)  C = Severely | **B = Moderately (or suspected of being malnourished)** |

1. Using Appendix I, how would you triage nutritional intervention?
   1. I would triage nutritional intervention at a 2-3. This score means that the patient and family would require education by the dietitian, nurse or other clinician with pharmacologic intervention as indicated by symptom survey and laboratory values as appropriate.
2. What methods are available to estimate Ms. Geitl’s energy needs?
   1. Methods available to estimate Ms. Geitl’s energy needs are the Harris-Benedict Equation and the Mifflin-St. Jeor Equation. (Nelms, 2011).
3. Calculate Ms. Geitl’s basal energy needs using one of the methods you listed above.
   1. Mifflin- St. Jeor:
      1. 10 x wt + 6.25 x ht – 5 x age – 161
      2. 10 x (72.72 kg) + 6.25 x (180.34 cm) – 5 x (20) – 161
      3. 727.2 kg + 1127.125 – 100 -161
      4. **= 1,593.33 kcal 🡪** **1500-1600 kcals/day**
4. What is Ms. Geitl’s estimated energy expenditure?
   1. Estimated energy expenditure:
   2. 1600 kcal x 1.2 (physical activity factor) = 1920 kcal
   3. 55% CHO = 1920 kcal x 0.55 = 1056 kcal/4 kcal/g = 264 g
   4. 30% FAT = 1920 kcal x 0.30 = 576 kcal/ 9kcal/g = 64 g
   5. 15% PRO = 1920 kcal x 0.15 = 288 kcal/ 4kcal/g = 72 g
5. Evaluate her diet history and her 24-hour recall. Is she meeting her energy needs?
   1. After evaluating her diet history and 24-hour recall, it does not appear that Ms. Geitl is meeting her energy needs. According to MyFitnessPal, she is only consuming about 477 calories based on her 24-hour recall. She is consuming about 60 grams of carbohydrates, 10 grams of fat, and 40 grams of protein. These values are significantly lower than her recommended intake of 1920 calories, 264 grams of carbohydrate, 64 grams of fat, and 72 grams of protein.

(MyFitnessPal, 2015).

1. What would you advise?
   1. I would advise that she consume small, frequent meals since she does not have much of an appetite. I would suggest a sample meal plan, including nutrient dense foods and easy, convenient foods since she complains of not having time to eat lunch. I would also educate the patient and family on the significance of meeting nutritional needs.
2. List each factor from your nutritional assessment and then determine an expected outcome from each.

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| **Assessment Factor** | **Expected Outcome** |
| Inadequate energy intake | Increase patient’s calorie consumption gradually until she meets her recommended 1900 kcal/day. Incorporate small, frequent feedings that are easy and convenient. |
| Inadequate carbohydrate intake | Recommend easy and preferable carbohydrate choices so that she may meet her recommended by 264 grams per day. |
| Inadequate protein intake | Encourage protein sources either in the form of animal protein sources or plant protein sources to increase her protein intake to the recommended 72 grams per day. |
| Inadequate fat intake | Encourage patient to choose regular fat versions of products versus low fat versions to make sure that she is meeting her 64 grams per day. |

1. What is your immediate concern regarding this use of St. John’s wort?
   1. My immediate concern regarding the use of St. John’s wort would be that an SSRI medication and St. John’s wort should not be taken simultaneously. The drug interactions could cause elevated serotonin levels that may lead to serotonin syndrome. I would recommend that the patient terminate her intake of the herbal supplement.
2. Review the initial nutrition note written for this patient. Is this progress note appropriate? Is it complete? Any errors? Any omissions?
   1. The nutrition note appears to be appropriate to the patient’s status. The note is very beneficial for the entire healthcare team. The note seems to lack some detail in the sections, though it is set up correctly for the SOAP note. In the subjective section, it would have been helpful to describe the patient’s lifestyle habits, culture, occupation, and her current depressive symptoms. The nutritional data that was included in the subjective section would have fit more appropriately under the objective section of the note. The patient’s BMI and other calculations of usual body weight would have been beneficial to include in the objective section as well. Also, the caloric intake recommended for this patient is much higher than I would recommend so that should be readdressed. I do agree with the discontinuation of the St. John’s wort supplementation while she is prescribed Zoloft. Finally, for the nutrition plan, more specific recommendations should be made regarding the patient’s appetite and nutrition interventions.

Works Cited

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