Case Study #5: Cardiovascular

Questions: 1, 2, 6, 8, 9, 11, 12, 13, 14 and 19.

Understanding the Disease and Pathophysiology

Question 1: Mr. Garcia had a myocardial infraction. Explain what happened to his heart muscle and vascular system

- The plaque around the heart ruptures and causes a blood clot to form, which blocks the artery or travels somewhere else in the body causing blockage at that site. A myocardial infraction (MI) may be the result. It is also known as a heart attack and in the brain, it is called an ischemic stroke.

Question 2: Mr. Garcia's chest pain resolved after 2 sublingual NTG at 3-minute intervals and 2 mg of IV morphine. Explain angioplasty and stent placement. What is the purpose of this medical procedure?

- Angioplasty is a procedure that is done to restore the blood flow through narrow or blocked arteries. Stent placements are used in almost all angioplasty procedures. A stent is metal-mesh coil that is put into the area of the artery to help keep the artery from closing or becoming narrow again.

Understanding the Nutrition Therapy

Question 6: The RDN plans to talk about the Mediterranean diet with Mr. Garcia and his wife. What are the basic principles of the Mediterranean diet? What does literature say in regard to the relationship between Mediterranean dietary principles and future heart health?

- There is no definition for the Mediterranean Diet in research. Some common features of the diet include: a greater number of serving of vegetables and fruit (mainly fresh) with an emphasis on root vegetables and greens, whole grains, fatty fish (rich in omega-3) lower amounts of red meat with an emphasis on lean meats, lower fat dairy products, abundant nuts and legumes, and use of olive oil, canola oil, nut oil, or margarine blended with rapeseed oil or flaxseed oi. Studies have shown that patients that were randomized into the Mediterranean diet had a 30% decreased risk of CVD events.

Nutrition Assessment

Question 8: Mr. Garcia works in a sedentary job, but he does get some exercise daily. He walks his dog outside for about 15 minutes at a leisurely pace each day and plays with his grandchildren. Calculate his energy his energy and protein requirements.

- Weight: 215#/98kg
- Energy: 25-30kcals/kg
    - 2450-2940kcal/d
- Protein: 0.8-1.0g/d
    - 78.4-98g/PRO/d

Question 9: Using Mr. Garcia's 24-hour recall, estimate the total number of kcals he consumed as well as the energy distribution of kcals for protein, CHO, and fat using the food lists for diabetes.

- Total: 1594kcal
    - Breakfast:
        - Coffee w/milk (12g CHO) and sugar (15g CHO)
    - Midmorning Snack:

        - Egg (6g PRO) and cheese (9g FAT) on English muffin (13g CHO)
        - 8oz OJ (24g CHO)
        - Coffee w/milk (12g CHO) and sugar (15g CHO) x2
    - Lunch:
        - Tomato soup (12g CHO)
        - Grilled cheese (30g CHO)(9g FAT)
    - Dinner:
        - 1 c. rice (45g CHO)
        - 1. Black beans (23 g CHO)
        - Roast pork: (34g PRO)
        - 6oz cornbread (90g CHO)
- PRO: 160kcal
- CHO: 1272kcal
- FAT: 162kcal

Question 11: Mr. Garcia may be at risk for metabolic syndrome. What is this? Does he have any lab values that would support this diagnosis?

- Metabolic syndrome is a risk of clustering risk factors that increased the risk for CVD. This includes have 3 out of 5 of the following: low HDL, high waist circumference, high blood glucose (100-125), high blood pressure, or high triglycerides. Mr. Garcia has (1) low HDL, (2) high blood glucose, (3) high waist circumference, (4) high blood pressure, and (5) high triglycerides, so he would be considered at risk for metabolic syndrome.

Question 12: List the abnormal values that are found in his lipid profile. What are the long-term implications? What are the possible treatment options for these abnormalities?

- The abnormal values of his lipid profile are:
    - Cholesterol (mg/dL): 235, 226, 214
    - HDL-C (mg/dL): 30, 32, 33
    - VLDL (mg/dL): 44, 49, 51
    - TG (mg/dL): 220, 245, 257
- Abnormal lipid values can lead to long-term problems like atherosclerosis. This also increases the risk of a heart attack or stroke.

Question 13: Mr. Garcia was prescribed the following medications on discharge. What are the rationale and the food-medication interactions for each of these medications?

- Lopressor 50mg/d: Lopressor is a B1-blocker that decreases heart rate as well as cardiac output. Calcium may interfere with the absorption.
- Lisinopril 10mg/d: Lisinopril is an ACE inhibitor drug that reduces blood pressure by decreasing peripheral vascular resistance. Licorice and salt substitutes should be avoided.
- Nitro-Bid 9.0mg/2x/d: Nitro-bid is a nitrate drug that widens the blood vessels
- NTG 0.4mg sl prn chest pain: NTG is a drug that widens the blood vessels
- ASA 81mg/d: ASA helps prevent the reoccurrence of a heart attack. Avoid alcohol.

Question 14: You talk with Mr. Garcia and his wife. They are friendly and appear interested in your information. They are both anxious to learn what they can do to prevent another heart attack. What are examples of questions that you can ask them to assess how to best help them?

- *How is you food usually prepared?*
- *Who does the cooking?*

- *What are your typical meals like?*
- *Would you be willing to limit _____?*
- *Is there anything in particular you would like to discuss regarding this topic?*
- *What types of foods do you like?*

Nutrition Intervention

Question 19: Mr. Garcia and his wife ask about supplements. "My roommate here in the hospital told me I should be taking fish oil pills." What does the research say about omega-3 fatty acid supplementation for this patient?

- Omega-3's reduce the risk of myocardial infractions. They are good for the heart and blood vessels. They reduce triglycerides and reduce the risk of developing an irregular heartbeat. They also appear to help reduce plaque in the heart's arteries.