

## Case Study

### **I. Understanding the Disease and Pathophysiology**

#### **2.) What role does lower esophageal sphincter (LES) pressure play in the etiology of gastroesophageal reflux disease? What factors affect LES pressure?**

The low pressure in the stomach and the high pressure in the LES help to keep acidic contents in the stomach down instead of being able to retreat back through the LES and into the esophagus. Factors that affect pressure are; age, increased abdominal pressure (ex: tight clothing), alcohol, and certain drugs. (Nelms)

#### **3.) What are the complications of gastroesophageal reflux disease?**

Overtime the inflammation can lead to scarring of the esophageal tissue. After continuous inflammation it may lead to narrowing of the lumen because of scarring or esophageal ulcers. When there is scar tissue it makes it hard to swallow which can lead to dysphagia and precancerous changes to the esophagus (Barrett's Esophagus). (Mayo)

#### **4.) What is H.pylori, and why did the physician want to biopsy the patient for H.pylori?**

H.pylori is heliobacter pylori which is a bacterium that lives under the mucous layer of the stomach. H.pylori produces organisms that result in inflammation. Since H.pylori can cause inflammation of the stomach lining the physician wanted to test for it to make sure it wasn't playing a role in the indigestion feeling that Mr. Nelson was experiencing. (Nelms)

#### **5.) Identify the patient's signs and symptoms that could suggest the diagnosis of gastroesophageal reflux disease.**

A few of the signs and symptoms that suggest gastroesophageal reflux disease is that he has constant indigestion that is worsening, he is obese, under stress, takes aspirin daily, and eats foods that are higher in fat and consumes alcohol.

#### **6.) Describe the diagnostic tests performed for this patient.**

There were 3 diagnostic tests performed for Mr. Nelson; biopsy, endoscopy, and pH test. A biopsy test is when cells are removed to be examined and this was done to rule out an H.pylori infection. An endoscopy is looking inside of the body and indicated no ulcerations or lesions. Finally the pH monitoring indicated the diagnosis of GERD.

**7.) What risk factors does the patient present with that might contribute to his diagnosis?**

Risk factors that contribute to his diagnosis are that he is obese, he is sedentary, he has a diet high in fat, he drinks alcohol, and he takes aspirin daily.

**8.) The MD has decreased this patient's dose of daily aspirin and recommended discontinuing his ibuprofen. Why? How do aspirin and NSAIDS affect gastroesophageal disease?**

The MD has recommended decreasing his ibuprofen because it can worsen the effects of GERD. NSAIDS promote reflux by inhibiting formation of prostaglandins. Prostaglandins help minimize the effects of GERD by stimulating secretion of mucous and bicarbonate so without them the esophagus has less protection. (Life Extension)

**9.) The MD has prescribed lansoprazole. What class of medication is this? What is the basic mechanism of the drug? What other drugs are available in this class? What other groups of medications are used to treat GERD? What are potential nutritional side-effects?**

Lansoprazole is a proton pump inhibitor and is an antiulcer, anti-GERD, antisecretory medicine. It has an antisecretory effect and should be taken 30-60 minutes before a meal. Other drugs that are available in this class are; protonix, esomeprazole, and omeprazole. Other groups of medications that are used to treat GERD are antacids, antiulcer agents, and cholinergics. Potential nutritional side-effects are; decreased acid secretion, increased gastric pH, nausea, abdominal pain, and diarrhea. (Pronsky)

## **II. Understanding the Nutrition Therapy**

**10.) Are there specific foods that may contribute to GERD? Why or why not?**

Foods that are high in fat contribute to GERD and are thought to delay emptying of the stomach therefore there is longer opportunity for reflux to take place. Other irritating foods are very individual for each individual but those in common are; onions, chocolate, peppermint, spearmint, citrus fruits, garlic, alcohol, peppers, and caffeinated beverages. (Life Extension)

**11.) Summarize the current recommendations for nutrition therapy in GERD?**

Medical nutrition therapy for GERD is finding ways to decrease incidence and severity. Ways to decrease reflux and irritation is by decreasing gastric acidity, eliminating irritating foods in the diet such as caffeine and chocolate, eliminating activities that decrease LES pressure such as lying down after eating and smoking, and having a "CAPA (caffeine, alcohol, peppers, aspirin)-free" diet.

### III. Nutrition Assessment

#### A. Evaluation of weight/body composition

**12.) Calculate this patient's percent UBW and BMI. What does this assessment of weight tell you? In what ways does this contribute to his diagnosis.**

UBW: 215 pounds

BMI: 31.7 = class I obese

Being obese is risk factor for GERD. If he is obese than it also means that he is not eating as healthy and not being physically active which are also risk factors.

#### B. Calculation of Nutrient Requirements

**13.) Calculate energy and protein requirements for Mr. Nelson. Identify the formula/calculation method you used, and explain the rationale for using it. \*\***

Using BEE and his adjusted weight of 78.9 kg I figured that Mr. Nelson's energy requirements are 1706.8 kcals/day. After incorporating activity factor I figured 2218.8 kcals/day. Men:  $66.5 + (13.8 \times 79) + (5 \times 175.26) - (6.8 \times 48) = 1706.8 \times 1.3 = 2218.8$ . For protein I calculated that he would need the average of .8g/kg of body weight which comes out to 63.2g/day.

#### C. Intake Domain

**14.) Complete a computerized nutrient analysis for this patient's usual intake and 24-hour recall. How does his caloric intake compare to your calculated requirements?**

Mr. Nelson's caloric intake was much higher than what I calculated for his requirements. For his 24 hour recall his caloric intake was 3404.28 kcals compared to my calculation of 2218.8 kcals/day. He consumed around 1,000 more kcals than his requirement. His usual intake was much lower although he gave such a range of items this could be skewed. For his usual intake he consumes around 2395.3 kcals/day, which is much closer to my recommendation.

**15.) From the information gathered within the intake domain, list possible nutrition problems using the diagnostic term.**

Excessive energy intake (NI-1.5)

Excessive oral food/beverage intake (NI-2.2)

Excessive fat intake (NI-51.2)

Excessive protein intake (NI-52.2)

Excessive carbohydrate intake (NI-53.2)

#### E. Behavioral-Environmental Domain

**18.) What other components of lifestyle modification would you address in order to help in treating his disorder?**

One of the most important things Mr. Nelson could do is start being more physically active. Whether that means playing with his kids more, parking farther away from destinations to increase walking, or actually scheduling time in to work out, something needs to happen. Also now that he knows that he has GERD he can begin watching his diet for irritants, making modifications, and having smaller meals.

**19.) From the information gathered within the behavior-environmental domain, list possible nutrition problems using the diagnostic term.**

- Self monitoring deficit ( NB-1.4)
- Undesirable food choices (NB-1.7)
- Physical inactivity (NB-2.1)
- Poor nutrition quality of life (NB-2.5)

**IV. Nutrition Diagnosis**

**20.) Select two high-priority nutrition problems and complete the PES statement for each.**

Food and nutrition-related knowledge deficit (NB-1.1) related to diagnosis of GERD as evidenced by constant indigestion.

Excessive oral food/beverage intake (NI-2.2) related to stressful work environment and busy schedule as evidenced by gradual 35 pound weight gain and class I obesity.

**V. Nutrition Intervention**

**21.) For each of the PES statements that you have written, establish an ideal goal (based on the signs and symptoms) and an appropriate intervention (based on etiology).**

**Food and nutrition-related knowledge deficit (NB-1.1)**

Ideal goal: Increase knowledge of appropriate food and “CAPA-free diet” to decrease reflux.

Intervention: Give Mr. Nelson the appropriate information on GERD and begin implementing physical activity and eating corrections.

**Excessive oral food/beverage intake (NI-2.2)**

Ideal goal: Decrease kcals/day to his needed amount of 2218.8 kcals/day.

Intervention: Give Mr. Nelson easy modifications that can be made to change his diet and food logs to keep track of intake.