Case Study – Diverticular Disease and Colostomy

I. Pathophysiology

Diverticulosis is a disorder of the large intestine where diverticula (sac like herniations) form on the colon wall because of increased pressure in the colon. There is an increased incidence of this disorder as one continues to age. The prevalence of this disease can be hard to measure since many people with diverticulosis have no symptoms, but it is increasing as time goes on (Aydin, 2004). Most cases appear in patients ages 45 and up. These herniations can result from a long-term low fiber diet, or long-term constipation (Mahan, 2008). With weakened colon walls from the lack of fiber in the diet, they can have a difficult time pushing hard fecal matter through the colon. Weakened walls can also result from lack of exercise, which can make the GI walls decrease in effectively moving the fecal matter through the body. With weak colon walls and high pressure in the colon, the diverticula can form (Mahan, 2008).

There are usually no symptoms for diverticulosis until the disease progresses to diverticulitis. Diverticulitis is when there is an accumulation of fecal matter in the pouches (diverticula) on the colon wall (Mahan, 2008). These diverticula filled with feces become infected and inflamed, causing pain in the lower quadrant. This is often times accompanied by a fever, nausea or vomiting, cramping, and diarrhea or constipation. Mr. Gonzalez was experiencing all of these classic symptoms, along with flatus and a lot of abdominal discomfort.

Diverticulitis occurs in only about 10-25% of patients with diverticulosis (Mahan, 2008). Usually the pain and inflammation can be controlled through NPO for a few days, bowel rest, and antibiotics, but if the case is really bad, surgery may be necessary.
In Mr. Gonzalez’ case, he had severe diverticulitis, resulting in severely inflamed diverticula in the sigmoid and descending colon. In this case, he needed to have part of his colon removed, and a colostomy put in place.

II. Biochemical Measurements

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal</th>
<th>Test</th>
<th>Result</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hgb</td>
<td>11g/dl</td>
<td>14-17g/dl</td>
<td>BUN</td>
<td>12mg/dl</td>
<td>5-20mg/dl</td>
</tr>
<tr>
<td>Hct</td>
<td>33%</td>
<td>42%-52%</td>
<td>Creat</td>
<td>0.9mg/dl</td>
<td>0.6-1.2mg/dl</td>
</tr>
<tr>
<td>K+</td>
<td>3.4 mEq/L</td>
<td>3.6-5.0 mEq/L</td>
<td>Cl⁻</td>
<td>97mEq/L</td>
<td>101-111 mEq/L</td>
</tr>
<tr>
<td>Na+</td>
<td>133mEq/L</td>
<td>135-145 mEq/L</td>
<td>WBC</td>
<td>13 X 10⁹/mm³</td>
<td>5-10 X 10⁹/mm³</td>
</tr>
</tbody>
</table>

Mr. Gonzalez had one lab value that was high, and he had some lab values that were low. His hemoglobin and his hematocrit were affected due to the fact that he was experiencing bright red blood in his stool. This loss of blood is reflected in the low blood values shown in the table. Mr. Gonzalez had low serum electrolyte values (Na+, K+, and Cl⁻) because he was experiencing diarrhea. When a patient is experiencing diarrhea, their electrolyte levels can drop due to the high amount of water and electrolytes pulled into the colon wall and excreted with the stool. Mr. Gonzalez’ WBC count was high due to the fact that he was experiencing diverticulitis. When a patient has an infection or inflammation in their body, there are more white blood cells produced to fight off the infection and decrease the inflammation.

III. Anthropometric Measurements

IBW = 5’ (106lbs.) + 6lbs for every inch over 5’
= 106 + 42 = 148lbs. +/- 10% (14lbs)
= 134lbs-162lbs (range of IBW)

%IBW = actual/ideal weight… 208/148
=140% which is considered obese.
BMI = \frac{\text{weight (lbs)}}{\text{ht(in)}^2} \times 703
= \frac{208}{(67)^2} \times 703
= 32.5 \text{ which is considered obese.}

Through the calculations of all of Mr. Gonzalez’ anthropometric measurements, it is clear that he is obese and he is in an unhealthy range.

**IV. Drug-Nutrient Interactions**

Mr. Gonzalez is taking two different medications: Tenex and Ampicin. Tenex is an antihypertensive, and is used to control hypertension, or high blood pressure. (RxList, 2008). Some side effects of this drug include dry mouth, sedation, weakness, dizziness, and constipation (RxList, 2008). Some people may get a rash while on the medication, but this does not always happen. Sedation can become more prevalent if it is given with other CNS drugs. Avoid or limit alcohol use (RxList, 2008).

Ampicin is the other drug that Mr. Gonzalez was taking. Ampicillin is an antibiotic used to treat bacterial infections in genitourinary tract, the respiratory tract, and the GI tract (RxList, 2008). The doctor prescribed this drug for Mr. Gonzalez because he had a fever, tenderness in the left lower quadrant, and diarrhea, which are all signs of an infection. Some adverse reactions that have been seen with this drug include: nausea/vomiting, enterocolitis, and diarrhea (RxList, 2008). Antibiotics can kill good bacteria in the gut used to digest food, so digestion may be harder and some foods may upset the stomach.

**V. Medical Nutrition Therapy Recommendations**

The dietary recommendations for diverticulosis and diverticulitis differ greatly. When a patient is diagnosed with diverticulosis, they should try to slowly increase the amount of fiber in the diet to 35g/day, to help strengthen the colon wall and decrease
pressure (Mahan, 2008). With the increased fiber, it will also help decrease constipation and give bulky, softer stools (Mahan, 2008). There should also be a sufficient amount of fluids given to the patient, because of the increased fiber. A patient that is diagnosed with diverticulitis should be placed on a low residue diet, avoid seedy foods, and lower the amount of fat in the diet (Mahan, 2008). A sufficient time of bowel rest can be necessary. If bowels are severely bleeding or if there is abscess formation, the patient may need to be put on TPN and monitored for a few days, until inflammation and bleeding subside.

Mr. Gonzalez had a severe case and needed to have a colostomy. When a patient has to have a colostomy, they should be NPO after surgery, then moved to a liquid diet, then move to a low fiber diet with a sufficient amount of protein for healing. The patient should also intake foods that act as stool thickeners, such as applesauce. The patient should avoid stringy foods, foods that form gas, or foods that have strong odors. Some foods to avoid include: cabbage, mushrooms, pineapple, garlic, and asparagus. (Mahan, 2008).

Once Mr. Gonzalez has completely recovered, there are some health issues that need to be looked at. Mr. Gonzalez is obese, and he has a history of cardiovascular disease that runs in his family. He needs to lose some weight and increase his physical activity, because he is at a higher risk for developing CVD because of his weight. Mr. Gonzalez should try to decrease his saturated fats, trans fats, and cholesterol in his diet. Lowering sodium in the diet will help with the high blood pressure. These all will need to be life long changes, and in order to do this, he will need to change his lifestyle. Mr. Gonzalez is at an increased risk for many diseases because of his genes, and his BMI. In
order to decrease the risk, I would recommend he start to take a walk everyday. He has just gone through a lot of surgery and pain, and a simple walk daily will help him out significantly with weight reduction and risk reduction.
References

