Case 6 – Hypertension and Cardiovascular Disease

Name: Kim LaMora

Remember RD’s are experts in researching evidence-based practice for their patients so you can use other credible sources. ***Be sure to reference your answers and provide a Work Cited page at the end.***

I. Understanding the Disease and Pathophysiology

1. *Dr. Thornton indicated in his admitting note that he will “rule out metabolic syndrome.” What is metabolic syndrome?*

   Metabolic syndrome is a collection of metabolic risk factors. These risk factors include abdominal obesity, insulin resistance, prothrombotic state, hypertension and dyslipidemia. A person is considered to have metabolic syndrome if they are exhibiting three out of the five risk factors. Metabolic syndrome increases a person’s risk for atherosclerosis. The more risk factors a person demonstrates, the higher their risk.

2. *What factors found in the medical and social history are pertinent for determining Mrs. Anderson’s CHD risk category?*

<table>
<thead>
<tr>
<th>Medical history</th>
<th>Social history</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ethnicity-African American (highest risk for heart disease)</td>
<td>• Eats out at least 2 nights a week, eats at pizza and steakhouse type restaurants.</td>
</tr>
<tr>
<td>• Diagnosed one year ago with Stage 2 HTN</td>
<td>• Consumes 2 beers when dining out</td>
</tr>
<tr>
<td>• Was a 2-pack-a-day smoker (quit 1 year ago)</td>
<td>• Eats high fat snacks at night when hungry (ice cream)</td>
</tr>
<tr>
<td>• Mother died of MI related to uncontrolled HTN</td>
<td>• Skips dinner and snacks while playing bingo</td>
</tr>
<tr>
<td></td>
<td>• Finds food without salt to be bland</td>
</tr>
</tbody>
</table>

II. Understanding the Nutrition Therapy

3. *What are the most recent recommendations for nutrition therapy in hypertension? Explain the history of and rationale for the DASH diet.*
Treatment for hypertension should include both lifestyle changes such as increased physical activity and nutrition therapy. The most recent recommendations for nutrition therapy in hypertension are decreasing sodium, saturated fat and alcohol consumption while increasing the consumption of calcium, potassium, magnesium and fiber. These recommendations coincide with the guidelines for the DASH diet.

The DASH diet was created and studied in the 1990s. It was used to determine the effects of nutrients on BP. The diet is low in saturated fat, cholesterol and total fat. It included 8-9 serving of fruits and vegetables a day and three servings of low-fat dairy. It also included whole grains, fish, poultry and nuts. The diet is low in red meat, sweets and beverages containing sugar. The DASH diet is rich in magnesium, potassium, calcium, protein and fiber.

The study compared three different diets. One plan included nutrients similar to the average American’s diet, another plan was similar to the average American’s diet but with more fruits and vegetables added and the third plan was the DASH plan. They all contained 3000 mg of sodium a day. The study found that the fruit and vegetable plan and the DASH plan both lowered BP. The DASH plan had the greatest effect of lowering BP.

A second study was done during the same time known as the “DASH Sodium” study. This study looked at the effect of reduced sodium on blood pressure. The study consisted of two different eating plans. One was the DASH diet and the other was a diet similar to what the average American eats. The participants followed their plan for a month at each of the three sodium levels given, 3300 mg, 2400 mg and 1500 mg. Lowering sodium lowered BP for both eating plans. As the sodium level was reduced, the participants’ BP would also
decrease. The DASH plan had the best results overall. The best result was with the DASH diet with 1500 mg.

The DASH diet reduces the aspects of the diet that promote increased BP and heart disease. These include saturated fat and sodium. The DASH diet replaces the foods high in saturated fat and sodium with foods that are more heart healthy such as fruits, vegetables and fish and nuts. The diet promotes consuming more foods containing magnesium, potassium, calcium, fiber and omega-3 fats because these nutrients are known to promote health and decrease BP.

4. **What is the rationale for sodium restriction in treatment of hypertension? Is this controversial? Why or why not?**

Reducing sodium intake has shown to decrease BP thus helping to treat HTN. This issue has been controversial but recent research has shown that reducing sodium has a significant impact on BP. Some think sodium restriction is not a good treatment for HTN because the response to sodium restriction can vary among individuals. The DASH trials and the INTERSALT study all show supportive evidence that sodium restriction does have an impact on lowering BP.

5. **What are the Therapeutic Lifestyle Changes? Outline the components of the nutrition therapy interventions.**

The Therapeutic Lifestyle Changes associated with the treatment of HTN include increased physical activity, cessation of smoking, weight loss and reduced sodium, saturated fat and alcohol intake. Other lifestyle modifications include increasing the intake of potassium, calcium, magnesium and fiber.
Nutrition therapy interventions that are most effective address multiple lifestyle factors. Education is a major aspect of nutrition therapy that needs to be addressed for patients with HTN. The intervention for each patient should be based on their HTN history, current health status, other medical risks they might have, current treatments and medications, the knowledge of the patient and their readiness for lifestyle and behavioral changes.

Nutrition therapy for HTN should include the DASH diet which increase potassium, calcium, magnesium and fiber while decreasing saturated fat, sodium and total fat intake. A decrease in alcohol consumption is also recommended for those with HTN. Men should consume two or less alcoholic drinks per day and women should consume no more than one to lower their risk for HTN.

Weight loss is also another standard intervention for HTN. Research shows that a weight loss for 20 pounds has an impact on lowering systolic BP. Even a 10% weight loss can have a beneficial impact on BP. Physical activity is also important. The JNC 7 indicates 30 minutes of physical activity a day can decrease BP by 4-9 mm Hg.

The cessation of smoking is critical in the intervention for HTN. This may be the most important factor that can be changed to decrease the risk for HTN. The health benefits of quitting are almost immediate.

6. What is the rationale for the use of plant stanols/sterols and list some products that you may recommend?
The Evidence Analysis Library states that plant stanols and sterols are hypocholesterolemic agents. This means that they help to reduce cholesterol in the body. Phytosterols compete with absorption with cholesterol in the body. The phytosterols inhibit cholesterol absorption decreasing serum cholesterol levels. The evidence shows that plant stanols and sterols reduce total cholesterol and LDL cholesterol.

Reducing serum cholesterol and LDL cholesterol can have added health benefits. Reducing LDL can decrease plaque buildup which can cause increased BP. Lowered LDL cholesterol also decreases the risk for CHD.

I would recommend getting plant stanols and sterols through diet. Foods such as whole grains, fruits, vegetables, fish and nuts contain these beneficial phytosterols. If the diet was not providing adequate amounts then I would recommend foods fortified with plant sterols and stanols. Some examples include fortified margarines and orange juices.

III. Nutrition Assessment

A. Evaluation of Weight/Body Composition

7. Calculate Mrs. Anderson’s body mass index (BMI). What are the health implications of this number?

\[
\frac{72.7 \text{ kg}}{(1.68 \text{ m})^2} = 25.9
\]

Mrs. Anderson’s BMI of 25.9 is within the overweight range. This increases Mrs. Anderson’s risk for disease.

B. Calculation of Nutrient Requirements

8. Calculate Mrs. Anderson’s resting and total energy needs. Identify the formula/calculation method you used and explain your rationale for using it. (HINT: which formula is the most accurate?)

\[
\text{REE: } 10(72.7 \text{ kg}) + 6.25(163\text{cm}) - 5(54) - 161 = 1,315 \text{ kcals}
\]
\[
\text{Total Energy Needs: } 1,315 \text{ kcals} \times 1.5 = 1,973 \text{ kcals}
\]
I used the Mifflin St. Jeor equation because the evidence shows that this equation is most accurate (EAL). I used an activity factor of 1.5 because Mrs. Anderson walks for 30 minutes 4-5 times a week. She is also a housewife and most likely does chores around the house.

C. Intake Domain

9. Using a computer dietary analysis program or food composition table, compare Mrs. Anderson’s “usual” dietary intake to her prescribed diet (DASH/TLC diet).

<table>
<thead>
<tr>
<th>NUTRIENT</th>
<th>PATIENT INTAKE</th>
<th>Prescribed diet</th>
<th>COMPARISON</th>
<th>DISEASE IMPLICATIONS</th>
<th>Your diet recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>kcal</td>
<td>3,013</td>
<td>1,973</td>
<td>1,040 kcals over prescribed</td>
<td>Could lead to weight gain, obesity and increased risk for disease</td>
<td>Decrease caloric intake, especially fat intake</td>
</tr>
<tr>
<td>% kcal Pro</td>
<td>12</td>
<td>15</td>
<td>3% below recommended % intake</td>
<td>Increased risk for disease, % kcal Pro low because of high fat intake</td>
<td>Increase lean protein intake</td>
</tr>
<tr>
<td>% kcal CHO</td>
<td>43</td>
<td>50-60</td>
<td>below recommended % intake</td>
<td>Increased risk for disease, % kcal CHO low because of high fat intake</td>
<td>Increase intake of CHO, especially from whole grain sources</td>
</tr>
<tr>
<td>% kcal Fat</td>
<td>39</td>
<td>25-35%</td>
<td>over recommended % intake</td>
<td>Increased fat storage, increased risk for disease</td>
<td>Decrease total fat intake</td>
</tr>
<tr>
<td>%SFA</td>
<td>12.5</td>
<td>Less than 7%</td>
<td>5.5% over maximum recommended % intake. SFA should have lowest % within the fats</td>
<td>Increased LDL levels, increasing risk for heart disease</td>
<td>Decrease saturated fat intake. Replace fat with low fat or fat free options</td>
</tr>
<tr>
<td>%MUFA</td>
<td>4.2</td>
<td>Up to 20%</td>
<td>15.8 % below maximum recommended % intake. MUFA should have highest % within the fats</td>
<td>Lowered HDL, raised LDL. Increased risk for disease</td>
<td>Increase MUFA. Replace SFA and trans fat in the diet with MUFA</td>
</tr>
<tr>
<td>%PUFA</td>
<td>2.1</td>
<td>Up to 10%</td>
<td>7.9% below maximum recommended % intake. PUFA should have a higher % than SFA.</td>
<td>Increased LDL, increased risk for disease</td>
<td>Replace SFA and trans fat in the diet with PUFA</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>290</td>
<td>&lt;200 mg</td>
<td>90 mg over recommended</td>
<td>Increased serum cholesterol, increased LDL</td>
<td>Lower cholesterol intake to 200 mg or lower</td>
</tr>
<tr>
<td>Fiber</td>
<td>20</td>
<td>20-30 g</td>
<td>Meeting minimum but could increase for added health benefits</td>
<td>Increased fiber could help decrease serum cholesterol</td>
<td>Increase fiber intake with increased intake of fruits, vegetables</td>
</tr>
</tbody>
</table>
10. What nutrients in Mrs. Anderson’s diet are of major concern to you?

Mrs. Anderson’s fat intake, especially her saturated fat intake is of major concern. Her low intake of MUFAs and PUFAs are also a concern. Mrs. Anderson’s excessive intake of cholesterol and Na are a major concern. These high intakes are putting her at severe risk for HTN and CHD. Also her inadequate intake of Ca, K and Mg are also of concern especially when considering the DASH recommendations.

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

Some possible nutrition problems within the intake domain include excessive energy intake, excessive oral intake, inadequate bioactive substances, excessive fat intake, inappropriate intake of saturated fat, inadequate intake of calcium, potassium and magnesium and excessive intake of sodium.

D. Clinical Domain

12. Dr. Thornton ordered the following labs: fasting glucose, cholesterol, triglycerides, and creatinine. He also ordered an EKG. In the following table, outline the indication for these tests (tests provide information related to a disease or condition).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Normal Value</th>
<th>Patient’s Value</th>
<th>Reason for Abnormality</th>
<th>Your diet recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na</td>
<td>6453</td>
<td>&lt;2400mg</td>
<td>4,153 mg over recommended. This is a severe health risk</td>
<td>High BP, increase risk for HTN and CHD</td>
</tr>
<tr>
<td>Ca</td>
<td>1097</td>
<td>1200mg</td>
<td>103 mg under recommended</td>
<td>Increased risk for HTN, CHD, and bone diseases such as osteopenia</td>
</tr>
<tr>
<td>K</td>
<td>3877</td>
<td>4700 mg</td>
<td>823 mg below recommended</td>
<td>Increased risk for HTN and CHD, and bone diseases such as osteopenia</td>
</tr>
<tr>
<td>Mg</td>
<td>266</td>
<td>320mg</td>
<td>54 mg below recommended</td>
<td>Increased risk for HTN and CHD and bone diseases such as osteopenia</td>
</tr>
<tr>
<td>Parameter</td>
<td>Normal Value</td>
<td>Patient's Value</td>
<td>Reason for Abnormality</td>
<td>Your diet recommendations</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------</td>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Glucose</td>
<td>70-110</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUN</td>
<td>8-18</td>
<td>20</td>
<td>Decreased blood flow to kidneys.</td>
<td>Increase physical activity, less than 7% kcals from saturated fat, decrease trans fat to ≤1%kcals, dietary cholesterol ≤ 200 mg/day, ≥ 25g fiber/day, plant stanol/sterol intake to 3-4 g/day, soluble fiber intake of 8-10 g/day.</td>
</tr>
<tr>
<td>Creatinine</td>
<td>0.6-1.2</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>120-199</td>
<td>270</td>
<td>High saturated fat diet, low serum HDL, inadequate fiber</td>
<td>Less than 7% kcals from saturated fat, ≥ 25g fiber/day, plant sterol/stanol 3-4g /day</td>
</tr>
<tr>
<td>HDL-cholesterol</td>
<td>&gt;55</td>
<td>30</td>
<td>High saturated fat diet, diet inadequate in fruits, vegetables and whole grains.</td>
<td>Increase physical activity, increase MUFA intake</td>
</tr>
<tr>
<td>LDL-cholesterol</td>
<td>&lt;130</td>
<td>210</td>
<td>High saturated fat diet, diet inadequate in fruits, vegetables and whole grains.</td>
<td>Increase physical activity, less than 7% kcals from saturated fat, decrease trans fat to ≤1%kcals, dietary cholesterol ≤ 200 mg/day, ≥ 25g fiber/day, plant stanol/sterol intake to 3-4 g/day, soluble fiber intake of 8-10 g/day.</td>
</tr>
<tr>
<td>Apo A</td>
<td>101-199</td>
<td>75</td>
<td>Low HDL</td>
<td>Increase MUFA, increase physical activity</td>
</tr>
<tr>
<td>Apo B</td>
<td>60-126</td>
<td>140</td>
<td>High LDL</td>
<td>Increase physical activity, less than 7% kcals from saturated fat, decrease trans fat to ≤1%kcals, dietary cholesterol ≤ 200 mg/day, ≥ 25g fiber/day, plant stanol/sterol intake to 3-4 g/day, soluble fiber intake of 8-10 g/day.</td>
</tr>
</tbody>
</table>
### 13. Interpret Mrs. Anderson’s risk of CHD based on her lipid profile.

### 14. Indicate the pharmacological differences among the antihypertensive agents listed below.

<table>
<thead>
<tr>
<th>Medications</th>
<th>Mechanism of Action</th>
<th>Potential food-drug interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diuretics</strong></td>
<td>Decrease blood volume by increasing urine output. Inhibits renal sodium and water reabsorption.</td>
<td>Hypokalemia, hyperlipidemia, hypertriglyceridemia, hypercholesterolemia, glucose intolerance. N/V, anorexia, dry mouth, diarrhea, constipation. Potassium supplements may be needed. Effects may be increased by NSAIDS. Avoid natural licorice.</td>
</tr>
<tr>
<td><strong>Beta-blockers</strong></td>
<td>Block beta receptors in heart which decreases heart rate and cardiac output.</td>
<td>Nausea, diarrhea. Calcium may interfere with absorption. Upset stomach, dry mouth, stomach pain, gas, bloating, heartburn.</td>
</tr>
<tr>
<td><strong>Calcium-channel blockers</strong></td>
<td>Affect the movement of calcium. Causes the blood vessels to relax reducing vasoconstriction.</td>
<td>Edema, nausea, vomiting. Not advisable: heart failure, greater than first degree heart block, avoid natural licorice, limit caffeine, avoid or limit alcohol.</td>
</tr>
<tr>
<td><strong>ACE inhibitors</strong></td>
<td>Decreases peripheral vascular resistance by interfering production of angiotensin II for angiotensin I and inhibiting the breakdown of bradykinin. (Vasodilators)</td>
<td>Hypotension, esp. in the elderly. Can worsen renal function, hyperkalemia, dysgeusia. Causes dry mouth, nonproductive cough, hyperkalemia. Not advisable: pregnancy, avoid natural licorice, avoid salt substitutes.</td>
</tr>
<tr>
<td><strong>Angiotensin II receptor blockers</strong></td>
<td>Impedes the rennin-angiotensin system without inhibiting the breakdown of bradykinin.</td>
<td>May increase serum potassium. Avoid salt substitutes. Nausea, dysgeusia.</td>
</tr>
</tbody>
</table>

### 15. What are the most common nutritional implications of taking hydrochlorothiazide?

Reduced resorption of sodium, chloride and potassium can occur. Zinc deficiencies and hyperkalemia are also seen with the use of thiazide diuretics (Nelms).

### 16. Mrs. Anderson’s physician has decided to prescribe an ACE inhibitor and an HMGCoA reductase inhibitor (Zocor). What changes can be expected in her lipid profile as a result of taking these medications?

Her LDL should decrease, her HDL should increase and her triglyceride count should decrease (Nelms).
17. From the information gathered within the clinical domain, list possible nutrition problems using the diagnostic term.
   The one term from the clinical domain that applies is overweight.

E. Behavioral–Environmental Domain

18. What are some possible barriers to compliance? Within this domain, list possible nutrition problems.

   Mrs. Anderson may not follow her prescribed TLC diet. She was prescribed a 4-g Na diet in the past and quickly gave up on the diet. If the food Mrs. Anderson eats on her new TLC diet is bland she will quickly ditch her efforts toward following this diet as well.

   Mrs. Anderson may not be ready to comply with all of the lifestyle and diet changes that are required in order to reduced her risk of disease and manage her HTN. She does not show signs of good self monitoring or motivation. These factors are critical for success.

   The patient also seems to have a knowledge deficit when it comes to the food she is eating, and how to prepare it in a healthy way while still maintaining flavor. Mrs. Anderson requires education in these areas. If she can prepare healthy yet flavorful food, then she will be more likely to follow her diet.

   Some possible nutrition problems include food-and nutrition- related knowledge deficit, not ready for diet .lifestyle change, limited adherence to nutrition-related recommendations, undesirable food choices and inability or lack of desire to manage self-care

IV. Nutrition Diagnosis

19. Select two KEY nutrition problems and complete the PES statement for each.

   PES #1
   Undesirable food choices related to unwillingness to apply information about no added salt diet as evidenced by pt.’s unwillingness to select foods consistent with guidelines of 4-g Na diet previously prescribed as reported by pt., estimated Na intake 6,453mg inconsistent with no added salt diet and US Dietary Guidelines and BP 160/100.
PES #2

Overweight related to excessive energy intake as evidenced by BMI of 25.7 (overweight), overconsumption of fat - estimated total fat 39% of total kcals, estimated saturated fat 12.5% total calories, overconsumption of high fat and caloric dense foods as shown by 24-hr recall (tomato bisques soup, 1 tsp. margarine, 11/3 tbsp. butter, 3 tbsp. ranch dressing, 2 c ice cream, 2 beers), estimated excessive energy intake 3,013 kcals compared to calculated required kcals 1,973, low-intensity physical activity- walks 30 minutes 4-5 times/wk but may miss on bingo night, sedentary activities such as bingo and dining out, unwillingness to apply nutrition recommendation of 4-g Na diet, Dx of Stage I HTN, hypertensive heart disease and early COPD.

V. Nutrition Intervention

20. When you ask Mrs. Anderson how much weight she would like to lose, she tells you she would like to weigh 125, which is what she weighed most of her adult life. Is this reasonable? What would you suggest as a goal for weight loss for Mrs. Anderson?

This would mean her BMI would be 20.1. This is an attainable goal, but not the most reasonable. If Mrs. Anderson lost weight a desired rate of 1-2 pounds a week, she could achieve her goal within 9 months. This however would take complete dedication. Mrs. Anderson’s desire and ambition to do this would have to be determined. From her history. It is seen that she has given up when she has approached a barrier or challenge. She gave up on her 4-g NA diet because her food was bland. It gets harder to lose weight as people get older which menas Mrs. Anderson is going to need a lot of motivation to follow through.

My recommendation would be to set a goal of a 20 pound weight loss. The evidence shows that a loss of 20 pounds decreases systolic BP. Losing 20 pounds would also give Mrs. Anderson a BMI of 22.5 which would put her in the normal range on the BMI scale. This would decrease her risk for disease. This goal will be much more obtainable for Mrs. Anderson. She should start her to lose weight immediately at a rate of 1-2 pounds/week.
21. **How quickly should Mrs. Anderson lose this weight?**

Mrs. Anderson. She should start her to lose weight immediately at a rate of 1-2 pounds/week.

22. **Write Nutrition Prescription for patient. Include Diet type, kcal level, % kcal from CHO, PRO, FAT, Saturated fat, cholesterol, Na.**

1,975 kcal TLC diet with 25-25% total kcals from fat, 50-60% kcals from CHO, 15-20% kcals from protein, >7% kcals from SFA, cholesterol <200mg, Na <2400mg.

23. **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 the etiology). Use IDNT manual to label Intervention domains and subclasses; and give details of exactly what you are going to do.**

**PES #1**

Undesirable food choices related to unwillingness to apply information about no added salt diet as evidenced by pt.’s unwillingness to select foods consistent with guidelines of 4-g Na diet previously prescribed as reported by pt., estimated Na intake 6,453mg inconsistent with no added salt diet and US Dietary Guidelines and BP 160/100.

- **Goal:** Pt. consume foods that comply with no added salt diet.
- **Intervention:** Nutrition Education: Nutrition Education-Application. Develop skills in low sodium food preparation while maintaining flavor.

**PES #2**

Overweight related to excessive energy intake as evidenced by BMI of 25.7 (overweight), overconsumption of fat - estimated total fat 39% of total kcals, estimated saturated fat 12.5% total calories, overconsumption of high fat and caloric dense foods as shown by 24-hr recall (tomato bisques soup, 1 tsp. margarine, 11/3 tbsp. butter, 3 tbsp. ranch dressing, 2 c ice cream, 2 beers), estimated excessive energy intake 3,013kcals compared to calculated required kcals 1,973, low-intensity physical activity- walks 30 minutes 4-5 times/wk but may miss on bingo night, sedentary activities such as bingo and dining out,
unwillingness to apply nutrition recommendation of 4-g Na diet, Dx of Stage I HTN, hypertensive heart disease and early COPD.

  o Goal: Pt. lose 10-20 lbs through proper diet and exercise.

VI. Nutrition Monitoring and Evaluation

24. Evaluate Mrs. Anderson’s labs at 3 months and then at 6 months. Have the biochemical goals been met with the current regimen?

CHOL values have decreased to 210 mg/dl but still above normal. HDL has increased to 38 mg/dl but still below normal. LDL has decreased to 147 mg/dl but still above normal. LDL/HDL ratio decreased to 3.9 but still above normal. Apo A increased to a normal level of 110 mg/dl. Apo B decreased to normal level of 115 mg/dl. TG level has decreased to a normal level of 125 mg/dl.

If a lab value has not reached a normal or desired level, then it is moving in the right direction. It appears that the current regime is having a positive effect on the pt.’s lab values. All of the values are consistently moving in the desired direction that will benefit the pt.’s health. If the current regime is continued then all of the biochemical goals will most likely be met. To ensure this the pt. should be re-evaluated in another 3 months.

25. Write a concise ADIME note by pulling the key components from you answers. Consider the admission data only (not the 3 and 6 month data). Hand in typed version only.
A: 54 y/o African American female. Ht: 5’6” Wt: 160 lbs. BMI: 25.7 (overweight). PMH: Stage 2 HTN 1 year ago, nonpharmacological treatment with onset of HTN, Rx 4-g Na diet but pt. reported quickly abandoned effort due to “bland” food. Lost 10 lbs on walking program- 30 minutes 4-5 times/wk, pt. reports skipping exercise on bingo nights. Was a 2-pack-a-day smoker, quit last year. No c/o HTN symptoms, chest pain, SOB, syncope, palpitations or MI. FH: Mother died of MI related to uncontrolled HTN. Nutrition Hx: Pt. does majority of food prep and shopping, tends to skip dinner on bingo nights, snacks while playing, eats ice cream before bed. Pt. reports eating out on weekends at pizza restaurants or steakhouses, regularly consumes 2 beers when dining out, finds foods bland and tasteless without salt. Pt. reports desire to control BP, but doesn’t want to cut back on salt intake. BP 160/100, BUN 20 mg/dl, AST 39 U/L, CHOL 270 mg/dl, HDL 30 mg/dl, LDL 210 mg/dl, LDL/HDL ratio 7.0. Apo A 75 mg/dl indicating low HDL, Apo B 140 mg/dl indicating high LDL, TG 150 mg/dl, Plt. Ct. 430 x10^3/mm^3. Admitted with Dx. Stage 1 HTN, hypertensive heart disease, early COPD. Meds: hydrochlorothiazide 25 mg/day.

D:

1. Undesirable food choices related to unwillingness to apply information about no added salt diet as evidenced by pt.’s unwillingness to select foods consistent with guidelines of 4-g Na diet previously prescribed as reported by pt., estimated Na intake 6,453 mg inconsistent with no added salt diet and US Dietary Guidelines and BP 160/100.

2. Overweight related to excessive energy intake as evidenced by BMI of 25.7 (overweight), overconsumption of fat - estimated total fat 39% of total kcals, estimated
saturated fat 12.5% total calories, overconsumption of high fat and caloric dense foods as shown by 24-hr recall (tomato bisques soup, 1 tsp. margarine, 11/3 tbsp. butter, 3 tbsp. ranch dressing, 2 c ice cream, 2 beers), estimated excessive energy intake 3,013 kcals compared to calculated required kcals 1,973, low-intensity physical activity- walks 30 minutes 4-5 times/wk but may miss on bingo night, sedentary activities such as bingo and dining out, unwillingness to apply nutrition recommendation of 4-g Na diet, Dx of Stage I HTN, hypertensive heart disease and early COPD.

I: Nutrition Rx: 1,975 kcal TLC diet with 25-25% total kcals from fat, 50-60% kcals from CHO, 15-20% kcals from protein, >7% kcals from SFA, cholesterol <200mg, Na <2400mg.

   Goal: Pt. consume foods that comply with TLC diet.

   Goal: Pt. lose 10-20 lbs through proper diet and exercise

M/E:

1. Wt. biweekly
   Outcome: Pt. lose 1-2 lb/wk to reach desired wt. loss of 10-20 lbs.

2. Pt. consuming foods that comply with TLC diet
   Outcome: Pt. can provide food record at next visit. Consuming 1,975 kcal TLC diet with 25-25% total kcals from fat, 50-60% kcals from CHO, 15-20% kcals from protein, >7% kcals from SFA, cholesterol <200mg, Na <2400mg.
3. Complete fasting lipid profile every three months
   Outcome: CHOL 120-199 mg/dl, HDL >55 mg/dl, LDL<130 mg/dl, LDL/HDL ratio <3.22, Apo A 101-199 mg/dl, Apo B 60-126 mg/dl

4. Plasma Zinc every three months
   Outcome: Plasma Zinc 13.8 - 22.9 µmol/L

5. Electrolytes every three months
   Outcome: Serum potassium within standard range of 3.5-5.0 mEq/L, serum sodium within standard range of 135-145 mEq/L, serum chloride within standard range 98-106 mEq/L, serum calcium within standard range of 8.7-9.2 mg/dL and serum phosphate within standard range of 2.5-4.5 mg/dL.

6. BP every three months
   Outcome: Systolic BP <120 mm Hg, Diastolic BP <80 mm Hg
Meal Plan Narrative:

The menu planned is adequate. This menu provides 1,960 calories. Protein provides 19% of the kcals, carbohydrates provide 55% of the kcals and fat provides 26% of the kcals. These percents are adequate because they all fall within the parameter given for the diet. Of the carbohydrate calories most of them are from fruits, vegetables and whole grains. There is minimal added sugar and simple sugars in this menu. The menu also provides only 4.2% of calories from saturated fat. This is well below the maximum of 7% of calories from saturated fat.

The menu contains 5.5 servings of fruits and 6 servings of vegetables. The DASH diet recommends at least 4-5 servings of both fruits and vegetables. The menu is within the parameters of the DASH diet having 3 servings of dairy. This menu contains 6.5 servings of lean protein including meat, poultry, fish and nuts. The amount of grains/starch servings in this menu is 8.5. This is slightly over the recommended 8 by the DASH diet. I feel as though this is justified by the fact that this menu does not contain any “sweets” which are included in the DASH diet. These “sweets” if added to the menu would be considered a starch, thus taking the place of the excess 0.5 starch servings in this menu.

This menu is rich in fruits, vegetables and whole grains. This allows the menu to be rich in fiber, Vitamin C, calcium, potassium, magnesium and sodium. This diet is sufficient in Vitamin C and magnesium because it has 379% and 139% of the RDA respectively. This diet is also sufficient in calcium and potassium because it has 135% and 107% of the AI respectively. Fiber is also adequate in this menu because the menu contains 133% of the recommended amount. The adequate and high amounts of calcium, potassium, magnesium
and fiber found in this diet are key factors in a TLC diet. The evidence shows that diets high in these nutrients help to decreases BP and lower the risk for HTN.

The amount of cholesterol is also adequate for a TLC diet. Only 127 mg of cholesterol is found in this menu. This is only 63.5% of the allowed/recommended cholesterol intake. 9 g of saturated fat are in the diet, comprising only 4.2% of total calories.

When comparing the menu to the meal patter, the menu has an excess of 2.5g protein, 2g CHO and 0.7g fat. This is because not every food item can be made into a perfect exchange. I did my best with working with the foods in ESHA to form adequate exchanges.
References
