Module 6 Virtual: Exercise
Renal Physiology, Hypertension, Sodium & Potassium Homeostasis, Sodium Reduction and Flavor Building

Group 1

HPI:
Mr. H is a 48 year old African-American who comes into your practice for primary care. His previous physician has retired. His wife attends the first visit with him.

There is a five year history of hypertension, diabetes and hyperlipidemia. He also has chronic active hepatitis C and is part of a randomized trial that included actos, pegysus, and ribavarin.

During the trial he was on metoprolol XL, lisinopril, hydrochlorthiazide, and pravastatin.

Past Medical History
Hypertension
Type II Diabetes
Hyperlipidemia
Appendectomy
Chronic Active Hepatitis C

Medications
Telaprevir
Interferon
Ribavarin (Vertex study)
Glipizide 2.5 mg QD

He is faithful about taking them and says that he really doesn't "like the idea of all this medication." His wife came with him to the visit and gives details on his medications and lifestyle.

Social History
He works as a contractor, is married and does not smoke. He does not drink presently because he is part of the hepatitis protocol.

He does not exercise but his job is "physical." He works as a building maintenance supervisor. He eats "on the run." He explains that he will usually stop at McDonalds for an Egg McMuffin and a coffee for breakfast. Sometimes he will eat in the cafeteria for lunch but most of the time he has a Subway turkey sub.

He will snack in between lunch and when he goes home for dinner usually on something from the vending machine like peanut butter crackers. For dinner his wife does all the cooking and they rarely eat out. She will use boxed meals like Hamburger Helper or make a meal from scratch. '/

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Review of Systems
He has had some slight blurring of vision.
No headache.
No cough.
No trouble swallowing but occasional heartburn.
No chest pain or dyspnea.
No report of GU issues other than worsening issues with getting erections.
No joint pain. No muscle ache.
No skin complaint.
No change in mood but somewhat fatigued.
No report of swollen glands.

Examination
Blood Pressure: 142/88
Height: 72 inches
Weight: 229 lbs.
Waist: 44 inches
Hips: 43 inches

HEENT: normocephalic and atraumatic. Fundii benign.
Lungs: Clear
Cardiovascular: Normal S1 and S2. No murmur.
Neck: No JVD or thyromegaly
Abdomen: Soft and Non-tender. Normal bowel sounds
Neurologic: Cranial nerves 2 – 12 grossly intact. Normal DVT throughout
Extremities: No ulceration of feet. Good DPP bilaterally

Initial labs:

Creatinine = 1.0
Hemoglobin A1c = 6.3%
Total Cholesterol: 141
Triglycerides: 92
HDL: 44
LDL: 79

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Group 1 Questions:

1. Research the sodium content of processed foods that he is consuming. Makes sure that you include examples of the boxed meals his wife is using and items from the vending machine.

Sample resources:

Subway.com
McDonalds.com
USDA Nutrient Database: http://ndb.nal.usda.gov/ndb/foods/list

2. Recommend ideas for him to make substitutions or additions to his diet based on DASH guidelines.

Be specific on better choices for breakfast, lunch, dinner, and snacks.

3. Pick one of your team members to lead a discussion during dinner to create recommendations to his wife on how she can change her cooking.

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Group 2

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Group 2 Questions:

1. Calculate his Body Mass Index.

2. Calculate his caloric needs based on activity level (Mifflin St. Joer and activity factor of 1.2).

3. Describe target caloric deficit for weight loss in this patient.

4. How much exercise is required to expend the amount of calories targeted for weight loss? List options for activities appropriate for this patient. Is this realistic? What options can you discuss with this patient to reach their weight loss goals.

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Group 3

HPI:

You have just finished attending a conference on high blood pressure and are returning home. On the plane, a pleasant articulate woman, Aurora, strikes up a conversation and finds out that you are a physician and attended a conference on high blood pressure. This knowledge prompts her to share information regarding her mother, who is in her 70's and has had occasional episodes of elevated arterial pressure. Aurora relates to you that they measured her mother's blood pressure yesterday and it was 200 over 110 mmHg which caused some concern. However, when they measured the blood pressure in the other arm it was only 150/90 so they were not as concerned and just had her continue with her efforts to reduce salt intake. Nevertheless, she asks you to explain what these two numbers mean and whether or not it is unusual to have such different blood pressures from the different arms.

Aurora's Letter
I know that you were a heavenly messenger! My mother is alive today because of the advice you gave me while on our way to New Orleans last Saturday.

On Monday, I relayed the specific assumptions you made, after hearing my mother's symptoms, to mom's primary physician. On Tuesday, my mother's bp was 202/106 so Dr. Bazaldua arranged for mom to be admitted through the emergency room.

She was actually having chest pains and tingling in her arm when we arrived and they moved into action with emergency bp meds and nitro-glycerine. They did an MRI, put her in cardiac care and did a heart cath the next morning which revealed a 90% blockage on the left artery which runs behind her heart. They found 4 more blockages that are in the 50% range.

She does have kidney damage, just as you thought, and everything you said was a 'guess' was accurate. I feel we owe my mother's life to your gracious concern, time, and gifted knowledge.

The cardiologist, Dr. Lipollis, will schedule heart caths in about a month for the other blockages, right now we are just working at keeping her bp below 150/90 and allowing the angina to subside (which it has).

Rarely does a chance encounter change one's life, but ours did. My mother has 6 daughters, 12 grandchildren and 8 great grandchildren, so you gave us all a blessing. You were my miracle and an angel.

'Thanks' will never be the right word, but I mean it in the most gracious way.

Thanks, Aurora Zebert

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Group 3 Questions:

1. Explain to Aurora what the two numbers mean, the significance (or meaning) of the units commonly used, and the normal range of values as well as the separation (or difference) between the higher number and the lower number.

2. Discuss the potential implications of such drastically different pressure readings from the two arms. How would this be different in a normotensive young individual?

3. Explain to Aurora what usually causes high blood pressure and the general approaches used to treat high blood pressure. Keep in mind you are speaking with a patient.

4. What other possible diagnoses could explain unequal blood pressures?

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