AN EVIDENCE BASED APPROACH TO HYPERTENSION AND HYPERLIPIDENIA: A CASE STUDY

A 45 year old African American man presents to the IMC with a chief complaint of "my pressure is high". Apparently he recently was at a health fair and was told his blood pressure was "very high". His daughter who is in nursing school subsequently checked his blood pressure and told him that he needs to be seen by a doctor, and referred him to the IMC. The patient states he really feels "great" and would not be at the IMC if his daughter did not force him to be. He denies any headache, fatigue, dizziness, chest pain, palpitations, cough, wheeze, sob, abdominal pain, n/v/d/c, melena, hematochezia, low leg edema, dysuria, hematuria, rash, history of seizure or stroke, or numbness or weakness in arms or legs. He does admit to using an over-the-counter medication for runny nose and congestion (He believes he is allergic to his new dog).

PMedHx: Allergic rhinitis
PSurgHx: Tonsillectomy (at age 6)
Allergies: NKDA
Medications: Claritin-D 1 PO BID
Social: Smokes 1 ppd x 25 years; admits to 4 twelve ounce beers daily; strictly denies illicits; works for cable company as installation man; diet is meat and potatoes
Family: Mother alive age 80 with "low thyroid", Father deceased age 54 with "MI"
ROS: As Above

Vitals: Temp 97.1 HR 88 BP 186/100 Resp 14 Pulse Ox 98%RA Ht 68 in Wt 260# BMI 39.5 kg/m2
Gen: A&OX3, NAD, Pleasant, Obese
HEENT: PERRL, EOMI, oral mucosa moist, unable to visualize posterior pharynx, but no oral lesions noted; turbinates pink and moist
Neck: Supple, no JVD, no nodes, no thyroidmegaly
Heart: RRR no murmur, gallop, or rub
Lungs: BCTA no wheeze, rhonchi, rale
Abdomen: Soft, Obese, + BS, NT/ND, no mass, hernia, or bruit
Low leg: no edema, no clubbing, all distal pulses palpable, no lesions or rashes
Neuro: Grossly intact
Vasc: PPP

Please Use the JNC 8 Guidelines and other linked materials to answer the following questions

1. You obtain the previous BP readings from the patient's daughter (168/96, 172/98), the MA tells you she used the regular cuff to obtain the reading. Use following link to answer below questions:

   http://www.nejm.org/doi/pdf/10.1056/NEJMvcm0800157

- What is the appropriate procedure to get an accurate blood pressure measurement in the office (preparation, positioning of patient, cuff placement, rate of deflation)?
- Should the large cuff be utilized?

2. You follow appropriate procedures, utilize the large cuff, and obtain a blood pressure of 168/96 in right arm and 172/98 in left arm.
   Use following link to answer below questions:

   http://www.nhlbi.nih.gov/guidelines/hypertension/express.pdf

   - What is the appropriate classification of this gentlemen's blood pressure (what stage is it)? (table 1, page 3)
   - If his blood pressure continues to increase, does this lead to an even higher risk of heart attack, heart failure, stroke or kidney disease? (page 2)
   - What would be the expected decrease in stroke, MI and CHF in percentages if the patient is started on appropriate antihypertensive therapy? (page3)

3. What laboratory tests or additional studies are indicated at this time? (page 6 below guideline)

   http://www.nhlbi.nih.gov/guidelines/hypertension/express.pdf

4. The patients CBC, BMP, UA are all within normal limits. His EKG shows NSR with LVH. His fasting lipid panel reveals a total cholesterol of 220, LDL of 150, HDL of 40 and triglycerides of 150. You want to start treating his hypertension. Use following link to answer questions (2013 AHA/ACC Lifestyle Management Guidelines):

   http://www.sciencedirect.com/science/article/pii/S0735109713060294

- What lifestyle modifications can be advised to your patient, and what is the expected blood pressure change for each of these modifications? (Table 5, Table 8, Table 13, Table 16)
- Would you advise the patient to discontinue his Claritin D (if so, would you recommend any other treatment)?(not in guideline, use your drug reference to answer)

5. The patient tells you his cable job does not provide him with prescription medication coverage.
   Use the following link to answer the questions (JNC 8):

   http://jama.jamanetwork.com/article.aspx?articleID=1791497&utm_source=Silverchair%20Information%20Systems&utm_medium=email&utm_campaign=JAMA%3AOnlineFirst12%2F18%2F2013

   - What antihypertensive medication would you start this patient on at this time?(see Figure on page E10; review recommendations 2,3,7 in paper)
   - Would your choice change if he had diabetes mellitus? (see Figure on page E10 and recommendation 7)
   - What antihypertensive medication would you start if he was white or hispanic?(see figure on page E10; review recommendation 2,3,6)
   - What if he had chronic kidney disease (CKD)? For which individuals does JNC 8 apply the CKD recommendation for (who do they consider to have CKD)? (see Figure on page E10, review recommendation 4)
   - Would you start with one medication, two medications, or combo medication (two drugs in one tablet)?(Table 5, review recommendation 9)
   - When would you recommend follow-up for this patient?(recommendation 9, see also IMC Hypertension flow sheets)
   - What is the blood pressure goal for our patient? What would it be if he was 61 years old? (see Figure on page E10, review recommendations 1,2,3)
   - Would you order any follow-up blood work after the patient starts the medication? (not in guideline, use a drug reference to answer)

6. You see the patient 4 months later (you had night float, ICU, then CCU). He states that since his last visit with you, he has seen Denise Boville, CNP on two occasions. He has also quit drinking alcohol, has lost 10 pounds on his DASH diet and 150 minutes exercise weekly. Denise noted his blood pressure was still not at goal, and has titrated his amlodipine to 10 mg daily, HCTZ to 25 mg daily, and added lisinopril 40 mg daily. He states he takes his medications exactly as prescribed. His blood pressure today is 150/86. He asks what your thoughts are on "the mouth piece they are selling on TV to "cure snoring".
   Use below link to answer questions:

   http://hyper.ahajournals.org/content/51/6/1403.full.pdf

   - Does the patient have resistant hypertension?(page 1404 first paragraph)
   - What are some causes of pseudoresistance?(page 1405-1406)
   - What are some medications that can interfere with blood pressure control? (table 2 and text on pages 1406-1407)
   - What are some of the secondary causes of hypertension? Which are common and which are uncommon? (table 3 and text on pages 1407-1408)
   - What further workup would you complete on this patient? (figure on page 1409, text on pages 1409-1410)

(Bonus question) Your patient has a sleep study and is found to have severe sleep apnea. After treatment is begun with BiPap hs, the patient states he has never felt better. His blood pressure is now 132/78. Repeat labs are unremarkable, except his lipid panel shows that now (after 6 months of exercise, wt loss, change in diet) his total cholesterol is 200, HDL 42, TG 150, LDL 128. The patient unfortunately has not quit smoking. Utilize the following link for these questions:

http://circ.ahajournals.org/content/129/25_suppl_2/S1.full.pdf+html

Ron Jones 10/24/2014 8:58 AM
Deleted: http://content.onlinejacc.org/article.aspx?articleID=1770217

CV risk calculator (Pooled Cohort Equation):
http://my.americanheart.org/cvriskcalculator

- Should he be started on a statin at this time? (use cv risk calculator link above, figure 2 on page 15 of guidelines)
- What statin should he be started on? (table 5 on page 25; figure 2 on page 15)

- How would you monitor patient (follow-up, goals for therapeutic response, counseling, intensification)? (figure 5 on page 43)