AJKDblog

Test Your Knowledge: Hypertension

NephMadness 2019 featured the Hypertension Region. Do you know what's the same, and what's different, between the recent EU and US hypertension guidelines? Which matters more: the diagnosis or the management of primary aldosteronism? Test your knowledge on this region, which was the NephMadness 2019 Champion, with the quiz* below.

1. A 55-year-old woman with hypertension presents for routine office follow-up. He has no new complaints. He is taking nifedipine 60 mg a day. On exam his blood pressure (BP) is 135/75 mm Hg and is otherwise unremarkable. Based upon the newest European guidelines, which of the following do you recommend?

    A. Switch nifedipine to lisinopril 40 mg per day
    B. Add chlorthalidone 25 mg a day for a goal BP of less than 120/80 mm Hg
    C. Decrease his nifedipine to 30 mg a day for a goal BP of 140-160/80 mm Hg
    D. No changes to his current regimen

2. A 57-year-old man with CKD stage 3 from hypertensive nephrosclerosis without proteinuria presents to his nephrologist for routine follow up. He has been well with no new medical complaints. He is currently taking lisinopril 40 mg a day. On exam, his blood pressure is 150/85 and is otherwise unremarkable. Based upon the newest US guidelines you recommend escalating his blood pressure regimen to which of the following goals?

    A. Less than 140/80 mm Hg
    B. Less than 130/80 mm Hg
    C. Less than 140/90 mm Hg
    D. Less than 130/90 mm Hg

3. A 37-year-old woman with longstanding, difficult-to-control hypertension presents for routine follow-up. She has no new complaints. She is currently on lisinopril 40 mg a day, chlorthalidone 50 mg a day, and amlodipine 10 mg a day. These medications have been unchanged for the past 6 months. Her blood pressure today is 155/85. She reports no missed doses of her antihypertensives. She denies use of herbal supplements, illicit drugs, or other medications. Today's labs are as follows:

Serum	
K^+	2.8 mEq/L (2.8 mmol/L) (Normal range 3.5-5.2 mEq/L)
Creatinine	0.5 mg/dL (44.2 µmol/L)
Aldosterone	9 ng/dL
Plasma renin activity	0.5 ng/mL/h

After correcting her hypokalemia, which of the following is the next most appropriate step in diagnosing the cause of her hypertension?

A. Measure plasma aldosterone and plasma renin activity
B. Urine drug screening for cocaine metabolites
C. Computed tomography angiography of renal arteries
D. Measure serum catecholamines

4. A 47-year-old man with resistant hypertension is diagnosed with primary hyperaldosteronism from a unilateral adrenal adenoma. He opts for medical treatment over adrenalectomy treatment and is started on spironolactone 50 mg a day with good control of his blood pressure. Compared with medical management, surgical treatment would have decreased his risk of developing which of the following?

A. Chronic kidney disease
B. Diabetes mellitus
C. Hyperkalemia
D. Hyponatremia

- Quiz prepared by Anna Burgner, NephMadness Executive Team and AJKD Social Media Advisory Group Member. Follow her @anna_burgner.

To view the full region Hypertension Region (FREE), please visit AJKDBlog.org.
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*This quiz was originally featured in the MOC Post-Test Questions for NephMadness 2019.

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Answers to Your Knowledge: Hypertension Region

1. **D. No changes to his current regimen**

   The most recent European Guidelines from ESC/ESH recommend a goal BP of less than 140/90 but to avoid a SBP less than 120 mm Hg.

   Reference:
   Williams B, Mancia G, Spiering W, et al. 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. *J Hypertens* 2018; 36(10): 1953-2041.

2. **B. Less than 130/80 mm Hg**

   Section 9.3 of the US Guidelines deals with management of hypertension in CKD. In patients with CKD (either GFR < 60, or with > 300 mg/day of albuminuria) they recommend a goal of < 130/80 mm Hg. Secondly, they recommend treatment with an ACE inhibitor first, to slow kidney progression.st appropriate treatment would be to resume his oral medications.

   Reference:
   Whelton P.K., Carey R.M., Aronow W.S., et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 2018; 71(19): 2199-269.

3. **A. Measure plasma aldosterone and plasma renin activity**

   She has resistant hypertension defined as a BP > 130/80 mm Hg with 3 or more drugs at optimal dosages, including a diuretic; in addition, she is hypokalemic. Primary aldosteronism should be suspected. Her plasma aldosterone level is normal but hypokalemia can suppress aldosterone and can lead to false negative testing. Angiotensin converting enzyme inhibitors can also mildly suppress aldosterone.

   Reference: Funder JW, Carey RM, Fardella C, et al. Case detection, diagnosis, and treatment of patients with primary aldosteronism: an endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 2008; 93(9): 3266-81.

4. **A. Chronic kidney disease**

    Mineralocorticoid therapy for primary hyperaldosteronism is associated with a higher risk of developing chronic kidney disease. Surgical adrenalectomy appears to mitigate this risk.

    Reference:
    Hundemer GL, Curhan GC, Yozamp N, Wang M, and Vaidya A. Renal outcomes in medically and surgically treated primary aldosteronism. *Hypertension* 2018; 72(3): 658-66.

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