Kaplan USMLE Step 3 prep: Addressing high blood pressure

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Staff News Writer

If you’re preparing for the United States Medical Licensing Examination® (USMLE®) Step 3 exam, you might want to know which questions are most often missed by test-prep takers. Check out this example from Kaplan Medical, and read an expert explanation of the answer. Also check out all posts in this series.

This month’s stumper

A 56-year-old woman comes to the clinic for follow-up of her hypertension and diabetes. She has been on ramipril (minimum dose), metformin and glimepiride. The patient has no symptoms. There has been no protein in the urine in the past. She stopped smoking six months ago. She is meticulous about her diet and ingests almost no salt or saturated fats. She exercises with a stationary bike for 30 minutes, four times a week.

The patient has become a fan of home blood-pressure monitoring with an automated device; over the last several days at home the printout showed blood pressure to be 142/82, 148/85, and 146/84 mm Hg. Blood-pressure monitoring in the office today shows the same range of values. What is the correct management of this patient's current blood pressure level?

A. Add clonidine.

B. Add propranolol.

C. Raise ramipril dose.

D. Add telmisartan.

E. No additional action is required.
Kaplan Medical explains why

Patients with diabetes should have their blood pressure maintained at below 140/80 mm Hg. The standard of care is to make significant attempts to protect the vasculature in those with diabetes. With blood pressure in the range of 140–150 and 80–90 mm Hg, this patient needs more therapy. First, get the blood pressure to the target of below 140/90 mm Hg. Second, maximize one drug such as an ACE inhibitor with good benefit rather than start a second medication.

Why the other answers are wrong

Choice A: Clonidine is a central alpha -2 receptor agonist, agents which should never be used as a first choice for blood pressure medication. Use an ACE inhibitor, calcium channel blocker, or beta-1 specific blocker first. In addition to rebound hypertension, central-acting alpha agents such as clonidine and methyldopa cause fatigue, depression, and memory disturbance.

Choice B: Propranolol is never a good choice for blood pressure control, especially in a diabetic, because it is a nonspecific blocker of beta-1 and -2 receptors. Beta-2 receptors promote
glycogenolysis and gluconeogenesis. This is why, with hypoglycemia, nonspecific beta blockers prevent the autoregulation of glucose.

**Choice D:** There is no benefit to adding an ARB such as telmisartan, valsartan, olmesartan, losartan, or candesartan to an ACE inhibitor. ACE and ARB are not clearly more effective than either drug alone.

**Tip to remember**

Blood pressure goal in a diabetic is below 140/90 mm Hg. Use ACE inhibitors or ARBs individually, not in combination.

For more prep questions on USMLE Steps 1, 2 and 3, view other posts in this series.

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