EMERGENCY MEDICINE CASES

EPISODE 40 PART 1: ASYMPTOMATIC HYPERTENSION
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HIGH BP IN THE ED: When seeing a patient with high BP, our experts recommend the following questions be used to differentiate true **hypertensive emergencies** from less urgent presentations:

1) is there acute end-organ dysfunction and/or damage?
2) is the dysfunction attributable to the elevated blood pressure (or will the elevated BP likely to make the dysfunction worse)?
3) is altering the BP necessary to improve the organ dysfunction?

If the answer is "Yes", this may be a hypertensive emergency. If not, these patients with high BP can be treated on an individualized basis, less aggressively.

Does triage BP correlate with outpatient HTN? For patients who present at triage with a high BP, an elevated second measurement one hour later correlates highly with actual outpatient hypertension (1), and does not correlate with the patient's anxiety and/or pain (2).

New Joint National Committee (JNC) guidelines for older patients: The new JNC guidelines suggest that over-aggressive BP treatment in the elderly may not be beneficial. Adivise outpatient BP targets for patients over 60 years old should be below 150/90 (3). Canadian Hypertension Education Program (CHEP) 2013 guidelines suggest these targets for patients over 80 years of age.

History for asymptomatic hypertensive patients

Ask a few key questions to identify possible causes of hypertension:

1) does the patient have a history of hypertension?
2) are they compliant with their medications? Any medication changes?
3) do they have a recent trigger (high salt diet, alcohol use, NSAID use, steroids, cold meds)
4) are they pregnant or are they postpartum?
5) when was the last time they had their BP checked (and is this chronic hypertension that does not require acute management)?

What diagnostic tests should we do for asymptomatic patients?

Recent ACEP guidelines suggest no workup is needed. However, as studies show a 6–7% rate of clinically meaningful findings (4), **consider screening tests** on select patients. Consider a urine dip, which is 80–90% sensitive for renal dysfunction (5). Follow with renal bloodwork if abnormal (proteinuria or hematuria). When screening patients unlikely to have close follow-up, consider starting with renal bloodwork, to avoid missing that 10–20% who will have a normal urine. If the hypertension may have been chronic, consider an ECG to look for LVH (may require outpatient Echo).

SYMPTOMS:

Take an organized approach to screening, by organ system, although symptoms are poorly related to BP (6).

CNS: Headache, nausea, vomiting, confusion, visual changes, neurologic localizing symptoms

Cardiac: chest pain, shortness of breath, ankle swelling, orthopnea, PND

Renal: polyuria, nocturia, hematuria

Secondary causes should be searched in patients who are younger (<30), and have very high BP (renal artery stenosis). Also think about Cushing syndrome, hyperaldosteronism, pheochromocytoma, etc.

PHYSICAL EXAM

Look for end organ damage and/or dysfunction. Focus based on presenting symptoms (i.e. careful neuro exam in patients with HTN and headache, or for signs of dissection in patients with high BP and chest pain).

Always look at the fundi for acute retinal hemorrhages, exudates, papilledema, as these signs indicate a hypertensive emergency. Retinal nerve diameter can also be assessed by bedside U/S, to look for raised ICP.

Check for physical signs of secondary causes (i.e. striae for Cushings).

TREATING THE BP

Should we treat patients with asymptomatic hypertension in the ED? Although there is a paucity of evidence for treatment of hypertension in the ED affecting short-term outcome (7), reducing BP will reduce risk of morbidity and mortality over the longer term (7).

How low and how fast should you go? *Do not drop BP rapidly*, as it alters cerebral perfusion and puts patients at risk for organ under-perfusion (i.e. ischemic stroke), especially if their blood pressure elevation has been chronic.

The ACEP Clinical Policy states there is no need to immediately reduce an asymptomatic patient with high blood pressure (8,9). They can instead be referred back to their family physician for BP management (10).

Is there a target BP for asymptomatic HTN?

The Canadian Emergency Medicine Cardiac Research and Education Group (EMREG) guidelines advise ED physicians to *consider* beginning antihypertensive therapy for patients with BP of >180/110, and *to initiate treatment* if BP > 200/130 (11). These recommendations are based on limited evidence. Furthermore, there are no guidelines for the exact target BP that needs to be achieved before discharge.

WHICH DRUG?

Most patients can be started on a thiazide, an ACE-inhibitor or ARB, or a calcium-channel blocker (CCB). (12)
Exceptions: For patients with coronary artery disease, a B-blocker is first line. For black patients, cardiac risk reduction is best achieved with a thiazide or a CCB.
** Remember to think about the contraindications for each agent. ACEi or ARBs are contraindicated in patients at risk for hyperkalemia. Do not use thiazides in patients with gout, and avoid B-blockers in patients with COPD or asthma. **

FOLLOW UP!

Although there is a paucity of evidence, most clinicians recommend follow up within 7 days, or more urgently for patients with severe hypertension or comorbidities.

CHEP guidelines are more liberal; they advise BP be rechecked within 1 month (13). However, patients started on an ACE or an ARB should follow up sooner, and have their electrolytes checked within 1 week.

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