

Asymptomatic and Under Pressure

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ANNALS CASE

Asymptomatic hypertension (HTN) may not be the “problem” that inspired us to pursue careers in emergency medicine. Frankly, any asymptomatic chronic complaint probably doesn't elicit a positive or energetic response from us emergency physicians. Yet it is an unfortunately common emergency department (ED) presentation. Although it may be easy to dismiss these patients, they are often extremely concerned (or were told by other professionals to be concerned) about their elevated blood pressure. Our evaluation of and—more important, empathetic and compassionate care for—the concerned patient in front of us is key. In this month's *Annals*, Atzema et al¹ describe the characteristics of patients who visit the ED after checking their blood pressure at home or at the pharmacy.

LET'S START WITH A CASE

A 52-year-old man with “no medical history” (although he has not consulted a physician in decades) presents to your ED with asymptomatic HTN. On a whim, he measured his blood pressure in a pharmacy. When it measured 230/130 mm Hg, the pharmacist called emergency medical services to take him to your ED by ambulance to “rule out” hypertensive emergency. On arrival, the well-appearing patient is asymptomatic and has a benign examination result, besides an elevated blood pressure of 229/141 mm Hg.

Our patient has 2 high blood pressure measurements concerning for stage 2 HTN according to the 2017

American College of Cardiology and American Heart Association guidelines.² Assuming these measurements are accurate and not falsely elevated by the patient's speaking; being nervous, anxious, in pain, or angry; wearing a small blood pressure cuff; or experiencing “white coat” HTN, he would then officially have asymptomatic HTN. In one study of ED patients with an initial blood pressure greater than 180/110 mm Hg, a 30-minute rest resulted in a significantly improved repeated blood pressure measurement in 32% of patients! Significant improvement was defined as blood pressure less than 180/110 mm Hg with at least a 20-mm Hg reduction in systolic or a 10-mm Hg decrease in diastolic blood pressure.³

QUESTION 1: WHAT ED TESTING, IF ANY, DOES ASYMPTOMATIC HTN NEED?

The ED HTN evaluation is entirely based on whether the patient has symptoms concerning for end-organ dysfunction. Does he have acute shortness of breath (acute pulmonary edema), chest pain (thoracic aortic dissection or cardiac ischemia), altered mental status (hypertensive encephalopathy), hematuria (acute hypertensive nephrosclerosis), or a severe headache (subarachnoid hemorrhage)? These symptoms are concerning for possible hypertensive emergency and should be evaluated appropriately.

The oft-mentioned HTN emergency with headache as the “emergency symptom” actually requires more differentiation. Is the headache clinically benign? If so, it is not actually an HTN emergency. The blood pressure may even be elevated as a result of the pain itself! If specific features of the history or physical examination are concerning for other dangerous intracranial pathology, then they should prompt further testing.

The American College of Emergency Physicians' (ACEP's) guidelines support the idea that hypertensive emergency (HTN with acute end-organ dysfunction) requires emergency treatment.⁴ How thoroughly one must look for end-organ dysfunction in the absence of symptoms remains a challenge. Is a creatinine test required for all asymptomatic patients with HTN? If the creatinine level

has increased slightly or if the patient's first known value is elevated, does that count as hypertensive emergency? And what about our ultrahighly, exceedingly, and outrageously sensitive troponin test? When that result comes back just above the "normal" limit, does that count as end-organ dysfunction?

The problem is that HTN can cause both acute and chronic end-organ dysfunction. It seems illogical to acutely treat a patient with chronic end-organ dysfunction in the ED, yet the absence of temporal features may conflate these 2 very different processes.

So are blood tests like a troponin or creatinine test necessary for asymptomatic HTN patients?

Thanks to ACEP's 2013 guidelines, testing is not recommended for asymptomatic patients...mostly. For select patient populations (such as those with poor follow-up), screening with creatinine level may affect disposition. This is a level C recommendation, which means it is based on evidence from Class of Evidence III studies or, in the absence of adequate published literature, based on expert consensus.⁴

So let's review the evidence. In a review of 109 outpatients, chest radiograph and ECGs did not identify a single abnormality related to elevated blood pressure.⁵ Among 167 asymptomatic HTN patients who received blood testing in the ED, 10 were admitted for abnormal evaluation results—all for elevated creatinine level—and 1 of those 10 received dialysis. No outcome data on the 9 admitted patients were available, so it's unclear whether there was any benefit for admission over discharge with urgent primary care follow-up.⁶ In another study, among 109 asymptomatic HTN patients with an ED evaluation, zero acutely abnormal results (ECG, basic metabolic panels, CBC counts, and urinalysis) as a result of the blood pressure elevation were identified.⁷

Last, in a review of nearly 60,000 hypertensive "urgency" patients (aka asymptomatic HTN) in an ambulatory clinic, there was no difference in major adverse cardiac events among patients sent home versus those sent to the ED.⁸ Major adverse cardiac event frequency was impressively low in the home versus ED groups: 0% versus 0.5% at 7 days and 30 days, and 0.9% versus 0.9% at 6 months.

ACEP's guidelines conclude that there is very little evidence to help determine which ED patients should be tested.⁴ Recently published joint clinical practice guidelines by the American College of Cardiology, American Heart Association, and other professional organizations (an update to previous Eighth Joint National Committee guidelines) recommend "evaluation" when systolic pressure exceeds 180 mm Hg or diastolic pressure exceeds 120 mm Hg, although with the absence of new or acute end-organ dysfunction,

recommendations are to initiate oral antihypertensive medications and arrange follow-up, typically within 4 weeks.²

QUESTION 2: HOW SHOULD WE DECREASE THIS PATIENT'S ACUTE BLOOD PRESSURE?

For asymptomatic HTN, as in our initial case, there is actually no supporting evidence to giving antihypertensives in the ED or to delay discharge until the blood pressure decreases.^{2,4} In fact, acutely decreasing the blood pressure with intravenous medications is definitively not recommended and can be dangerous.⁴ One study noted that intravenous medications decreased 33% of patients' blood pressures too much and too quickly, which risks causing hypotension, stroke, and acute kidney injury and may make the patient feel light-headed.⁹ ACEP and the American Heart Association/American College of Cardiology guidelines do not recommend decreasing asymptomatic blood pressure with intravenous agents.^{2,4}

So no treatment needed in the ED...but what's your "chicken number"? At what blood pressure number would you feel obliged to prescribe something for HTN from the ED? If the patient can follow up urgently with a primary care physician, no anti-HTN prescriptions or regimen modifications are needed.⁴ If there is difficulty accessing care, or if the primary care physician requests it or the ED physician prefers it, a prescription for antihypertensive medication can be given after an ED visit for asymptomatic HTN.

Make sure to encourage lifestyle changes. A 5-kg weight loss on the DASH diet while reducing dietary sodium to less than 1,500 mg/day, imbibing less than or equal to 1 alcoholic drink a day, and engaging in 90 to 150 minutes of aerobic exercise per week are together predicted to improve blood pressure by (drumroll please) 30 mm Hg.² Also, avoiding nonsteroidal anti-inflammatory drugs, systemic steroids, and caffeine may help as well. Oh! Also the cocaine...and amphetamines... Those may contribute to HTN as well and should be avoided...and the bath salts...and the over-the-counter erectile dysfunction medication yohimbine.¹⁰

No specific evidence-based or guideline-recommended timelines are given for when patients should follow up.^{2,4} Patients with a history of stroke, heart failure, coronary artery disease, or chronic kidney disease should follow up sooner to more specifically address long-term blood pressure control.²

CASE CONCLUSION

Knowing all that you know now, you immediately discharge the asymptomatic HTN patient without laboratory tests, an ECG, or imaging. He promises to consult his primary physician within 3 days, and, after

shared decisionmaking, the patient requests starting an antihypertensive today. A quick amlodipine prescription later, he profusely thanks you for keeping his bill down without any unnecessary testing. The remaining 15 patients waiting to be treated would also likely be overjoyed by your expedited and safe evaluation and disposition of this patient.

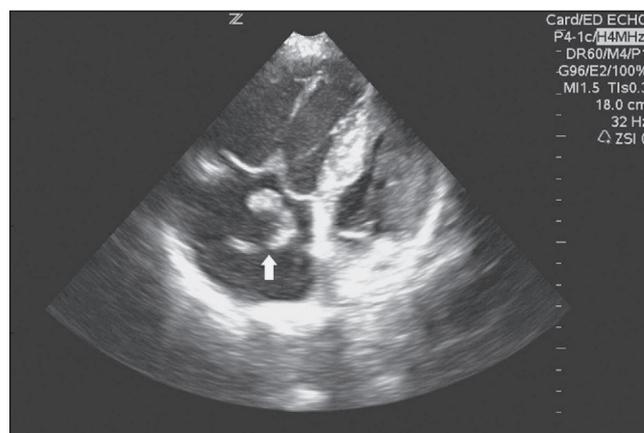
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