

Journal Club Synopsis

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Host: Dr. Wightman

Which patients with asymptomatic elevated blood pressure should undergo additional evaluation in the ED?

Clinical Scenario: You are working at the WPMC ED when you get a call from a provider in one of the outpatient clinics saying he is sending over a 65 y/o female with chronic hypertension, who was there for an unrelated problem and was found to have an intake blood pressure reading that was 183/105. She has absolutely no complaints. You ask what he, as her PCM, would like you to do for the patient, since we do not routinely administer medications to acutely lower blood pressure in the ED, if they are asymptomatic and chronically hypertensive. The response you get is: "Well, if I send her home and she has a stroke, that's on me, so you need to see her. She's on her way over." You hang up the phone and wish you had some piece of evidence to send to your colleague explaining why referral to the ED is not necessary. As you think about what you want to do for the patient, you ask yourself, which patients with asymptomatic hypertension should undergo additional evaluation in the ED, and possible initiation of outpatient medications?

Introduction: The above scenario was based on an actual encounter which caused a lot of frustration for obvious reasons, and I wanted to see what, if any, literature was out there to guide our practice with respect to asymptomatic HTN in the ED. Hypertension is a highly prevalent condition worldwide and carries significant risk for morbidity and mortality. JNC 7 makes recommendations for primary care physicians in their management of HTN and these recommendations are often applied to the emergency department, however this is not the setting these recommendations were intended for. ACEP came out with a clinical policy on the evaluation and management of asymptomatic elevated blood pressure in the ED to answer the questions (1) does screening for target organ injury reduce rates of adverse outcomes? and (2) In patients with asymptomatic markedly elevated blood pressure, does ED medical intervention reduce rates of adverse outcome? We discussed both of these questions with emphasis on the first one.

Article 1: Tilman K et al. Recognizing asymptomatic elevated blood pressure in ED patients: how good (bad) are we? *Am J Emerg Med* 2007; 25(3):313-317.

Summary: This was a retrospective chart review conducted to determine if EM physicians recognize patients with asymptomatic elevated blood pressure by diagnosis, treatment, or referral. Patients were included if they had an initial BP 140/90 or higher which did not come down on re-check. 1574 patients met inclusion criteria over a 3 month period. 112/1574 (7%) received documented attention for elevated BP which was defined as diagnosis on the chart, treatment in the ED, prescription, or referral. There was no statistical difference in patient age, sex, race, or insurance status between patients recognized to have elevated BP and those not recognized. The study concluded that ED physicians recognize only a small percentage of patients with asymptomatic elevated BP, ultimately missing an opportunity for early intervention and disease prevention. Limitations of the study include that this was a retrospective study, 60% of patients did not have repeat BP on the chart and may have been able to be excluded from the study if repeat testing had been lower, and some patients may have been verbally informed of their high blood pressure and need for follow up with this conversation not documented in the chart.

Article 2: Karras DJ et al. Utility of routine testing for patients with asymptomatic severe blood pressure elevation in the emergency department. *Ann Emerg Med* 2008; 51(3):231-239.

Summary: This was a prospective, cross sectional study at three academic sites. The primary endpoint was the prevalence of unanticipated, “clinically meaningful” test abnormalities in ED patients with asymptomatic severely elevated BP that led to hospital admission, further testing, consultation, or modification of the patient’s medication. Consecutive patients with either systolic BP >180 or diastolic BP >110 on 2 measurements were enrolled if they denied symptoms of hypertensive urgency within the past 24 h. A BMP, CBC, UA, EKG, and CXR were obtained and treating physicians were interviewed about the clinical indication for each test and whether or not an abnormal result was anticipated. When test results were available, physicians were asked whether or not abnormal results were “clinically meaningful”. 57/109 (52%) had unanticipated abnormal testing, with 7 (6%) having “clinically meaningful” abnormalities. Of the 7, only 5 were possibly related to acute hypertensive end-organ damage, and none had abnormalities determined to be directly related to severe hypertension. Their conclusion was that screening tests of patients with asymptomatic severely elevated BP infrequently detect hypertension-related abnormalities that alter ED management. Limitations of the study include that there was no standard criteria for “clinically meaningful” abnormalities and different physicians may have made different management decisions in response to the abnormal findings, this was a predominantly black population and may not be generalizable to all populations, there were protocol violations so not every enrolled patient underwent each of the required tests, and there was a surprisingly high number of patients meeting exclusion criteria so this was under powered with small sample size. Ultimately they were unable to recommend a strategy for safely eliminating screening tests in the ED for patients with asymptomatic severely elevated BP.

Article 3: Nishijima DK et al. Routine testing in patients with asymptomatic elevated blood pressure in the ED. *Am J Emerg Med* 2010; 28(2):235-242.

Summary: This was a prospective, cross sectional study done at 2 academic sites. The primary endpoint was admission secondary to abnormal BMP. The secondary endpoint was prevalence of diminished renal function defined as GFR <60. Asymptomatic patients with triage diastolic BP >100 were enrolled and all patients had a BMP sent. 12/167 patients (7.2%) were admitted for abnormalities seen on the BMP (10 for renal dysfunction, 2 for hyperglycemia). Conclusions of the study were that in a homogenous, African American population presenting to the ED with asymptomatic elevated BP, there is a relatively high prevalence of abnormalities on the BMP that led to hospital admission, so they suggest considering routine testing of serum creatinine in certain populations, including African American. Limitations of this study were that admission criteria were not standardized and this was a predominantly black population with poor access to primary care so there was a low threshold for admission and the results may not be generalizable to all populations.

Overall Discussion: The overall discussion centered around the questions of how to appropriately work up asymptomatic elevated BP, if at all, and how to best treat it. Many of the faculty weighed in on their particular methods of testing and treating these patients. The journal club articles were not thought to be extremely helpful in answering these questions definitively. It seems that there is no single clear recommendation for workup of patients with asymptomatic elevated BP, and each person will have to find a method that they are comfortable with. There was discussion on the public health impact of asymptomatic elevated BP as this is an insidious disease that can have severe consequences if not recognized and treated early. Dr Wightman ended the meeting by presenting 3 CATs focusing on the treatment of HTN.

Bottom Line: The evidence is poor with regard to the best way to work up asymptomatic elevated BP in the ED. The individual practitioner will have to find a method that fits within his or her comfort level. There is some evidence to suggest that in certain populations, including African Americans, the elderly, and populations with poor follow up, some initial screening may be helpful from a public health standpoint and preventing further disease. There is an ACEP policy to help guide these decisions.