

You are scrolling through the “next to be seen” board looking at vitals, deciding which patient to pick up and you notice a middle-aged man with a nonspecific CC, e.g. HA, with BP 163/111 and otherwise normal vitals. Maybe the next chart you pick up has a triage note that states the patient was sent to the ED from a yearly clinic visit due to elevated BP of 224/100. Alternately, your RN asks if you feel comfortable discharging one of your patients with a BP of 178/108, +/- PMHx of HTN.

Approximately 5% of all ED patients will have a diastolic pressure >110, and the majority of HTN patients are not on the appropriate antihypertensive treatment. Historically the JNC recommended a work-up (EKG, CBC, BMP, UA, lipids, CXR), but the guidelines were never extended into the acute care setting. Studies have shown that a limited number of ED providers do all of the screening tests, with the most frequently ordered being the BMP. Initially, this seems reasonable, as the expected abnormal findings on EKG, CXR, CBC are either unlikely to be found in an asymptomatic patient or ultimately won't change management in the ED. So can you forego all testing entirely?

Nishijima and Karras each published articles addressing screening tests for ED patients with asymptomatic HTN. Patients with symptoms suggestive of end-organ damage (CP, AMS, dyspnea, syncope, focal neuro deficit, abdominal pain) were automatically excluded from both studies and each had other more and less clear categories like hemodynamic instability, trauma, ESRD, pregnancy, and physician discretion that patient's symptoms were secondary to HTN.

- Nishijima opted for only looking for abnormalities in BMP or GFR of patients with triage vitals with DBP >100 in what happened to be a 92% African American population and found that 12/167 had an abnormal BMP value that required admission. However, 2 of the admitted patients had a diagnosis of hyperglycemia while the other 10 were admitted for renal dysfunction (1 requiring dialysis). Interestingly, neither the SBP nor DBP significantly differed between the groups of patients with and without lab abnormalities. This study had many limitations, including selection bias and the fact that no attempts were made to establish the frequency of BMP abnormalities in a matched population of normotensive patients. The authors even acknowledge that the majority of their patients lack access to primary care, and this may have influenced ED physicians' decisions to admit as there were no clear guidelines on dispo criteria. Nonetheless, they recommend for screening creatinine in AA HTN patients to evaluate for renal dysfunction.
- Karras looked at BMP, UA, EKG, CBC, CXR (albeit inconsistently amongst the 3 study sites) in patients with SBP > 180 or DBP >110 readings at least twice throughout the ED stay. The ED physician ordered these tests based upon the expectation of an abnormality as judged by the medical history/HPI/exam or due to routine assessment of “severely elevated BP.” A primary focus was placed on “clinically meaningful unanticipated abnormalities” whereby the test was simply done due to the BP and the result changed management; only 7/109 patients analyzed fell into this category and none were considered to be clearly as a result

of hypertensive end-organ damage. Notably, 52% had some unanticipated testing abnormality, but medical decision-making was only altered in 6%. 2 patients had EKG changes suggestive of ischemia with a negative work-up and 4 patients had CKD. The authors had trouble getting enough patients into the study due to the exclusion criteria of symptoms of end-organ damage within 24 hours of presentation, however, the population was more representative of Latino and white populations than the Nishijima study. Again the authors failed to match with a normotensive population. The conclusion is ultimately that they cannot safely eliminate screening of asymptomatic HTN patients because although abnormal results infrequently changed management, there were frequently abnormal results.

Luckily, there is an ACEP clinical guideline (2013) looking at if screening asymptomatic HTN patients in the ED for end-organ damage reduces adverse outcomes. There is a level C recommendation but it notes that in patients with poor follow-up, a **screening creatinine** may change dispo. The guidelines also discuss treatment of asymptomatic HTN in the ED, which is another topic for another day, but suffice it to say that it also has a level C recommendation. Thus, it is still unclear if you can forego testing entirely, however if you do test anything, the highest yield will be a screening creatinine.

References / Further Reading:

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