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EVMS Emergency Medicine

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Journal Club

Clinical Scenario: You have a 50 year old African American female who was visiting a health fair earlier today and was told that her blood pressure was dangerously high and that she should go to the nearest ED. She has no symptoms on arrival, but her BP at triage is 220/110.

P: In a patient with asymptomatic hypertension

I: Does rapidly decreasing the BP

C: Versus outpatient referral

O: Affect the rate of adverse outcome?

PubMed Search: Emergency Department, Hypertension, Treatment, English, Asymptomatic,

Title	Author/Date	Patient Group	Study Type	Outcomes	Results	Limitations
Increased BP in ED: Pain, Anxiety or Undiagnosed HTN?	Tanabe, et al Ann Emerg Med. 2008 Mar;51(3):221-9. Epub 2008 Jan 22.	189 adults enrolled, 156 completed the study Eligibility included age >18 yrs with 1 BP measurement of 140/90 or greater and psychologically stable on arrival	Prospective cohort	Of 156, 79 (51%) had elevated mean home BPs.	Pain and anxiety in the ED do not affect BP readings of >140/90	Convenience study, only 1 ED, and most pts had commercial insurance

Reproducibility of inc BP	Backer et al Ann Emerg Med. 2003 Apr;41(4):507-12.	407 patients age 21-80 noted to have BP in ED or UC	Cohort	65% followed up at 76.9% had abnormal readings on f/u	Despite complaint patients with increased BP in ED have increased BP on f/u	Small study low % of f/u despite reminders
Detectionof hypertension in the ED	Fleming J et al Emerg Med J. 2005 Sep;22(9):636-40.	51 subjects who were hypertensive on arrival to ER, also reported pain scale between 0-10.	Prospective screening study	39/51 subjects remained hypertensive (76% of visits, 5% of study population). Pts with PS of >5/10 did experience a dec of 8.4 mmHg on f/u, but this was not stat significant.	ED is an appropriate place to screen for HTN. Pain plays a role, but even so most patients will still be classified as hypertensive	Very small study. 213 eligible for study, only 51 followed up- probably selected for more motivated patients. Did pain contribute to non-follow up of other patients?
ER HTN Regression to the Mean	Pitts SR et al Ann Emerg Med. 1998 Feb;31(2):214-8.	195 consecutive hypertensive patients	Cohort	Dec in DBP from 104.5 to 92.9	BP decline	Small to no explanation of relevant factors
Asymptomatic HTN	Chiang et al Am J Emerg Med. 1998 Nov;16(7):701-4.	269 asymptomatic patients with SBP >180 or DBP >110	Retrospective study	20.8% received treatment Nif/Dilt more likely if BP higher and if h/o HTN	BP dec by avg of 20 mm Hg in treatment group and 11 in non-treatment	Not big enough to see any complications from treatment

Initial treatment of HTN	Berend N Engl J Med. 2003 Sep 11;349(11):1090-1;	Review of pharmacological option	Review	Diuretics and B blockers for HTN w/o comorbidities ACE/ARB for patients with DM, CHF, CRI ACE and B Blockers for h/o MI, CCB, risk of CVA	Start with HCTZ	Done in the Netherlands- generalizable? More white population? Health system differences affecting follow up, access to medicines, etc?
Rapid reduction of severe asymptomatic HTN	Zeller KR et al Arch Intern Med. 1989 Oct;149(10):2186-9.	64 patients randomized to Clonidine hour, then maintenance OR Clonidine x1 then placebo + maintenance OR Just maintenance	Randomized control trial	No difference in time to reach adequate BP or at 24 hrs or 1 week	No differences in outcome equal numbers had rebound HTN and 7 had to have dose lowered due to relative hypotension	Small study, short follow up
Severely Increased BP in the ED	Shayne et all Ann Emerg Med. 2003 Apr;41(4):513-29.	Review of studies and national guidelines	Not a study	No benefit of treating asymptomatic HTN acutely	Options for starting initial antihypertensives based on risk stratification vs referral	Many small studies, no true consensus
Hypertensive Emergency and Severe Hypertension: What to Treat, Who to Treat, and How to	Flanigan, Vitburg Med Clin North Am. 2006 May;90(3):439-51.		Review of older studies	No studies that indicate the headache alone is a risk factor for further complication.	Unnecessary to treat immediately Recommendations for treatment long-term	disorganized, makes generalizations based on old studies review of lit. Non-systematic

Treat				Initiate treatment that can be used as long-term therapy.		
Clinical Policy: Critical Issues in the Evaluation and Management of Adult Pts with Asymptomatic HTN in ED	Decker et al Ann Emerg Med. 2006 Mar;47(3):237-49.	Incl Criteria- clin policy is intended for ED pts older than 18 yrs. Excl criteria- acute hypertensive emergencies such as strokes, MI, new onset renal dysfunction	Review and critical analysis of peer-reviewed lit. MEDLINE search of "HTN" and "ED"		-immediate treatment not necessary when pts have f/u -rapdly lowering is unnecessary and may be harmful -pt to gradually lower BP and should not be expected to normalize during the initial ED visit, if you do decide to try	
Untreated Hypertension and the ED: A chance to intervene?	Umscheid, CA et al Acad Emerg Med. 2008 Jun;15(6):529-36.	sample of patients over 1 year, reviewed EMR	Retrospective cross sect study	Of 42% of ED pts with HTN by definition, almost half presented to ED with untreated HTN. In 2007, only 7% of ED physicians recorded diagnosis of HTN.	HTN was rarely documented by providers. Need to reform discussions and referral practices to motivate patients to follow up.	Based on prior dx of HTN in outpatient clinic, so new hypertensives would be misclassified as false-positive. Included pts with only single BP measurement in ED.
Utility of Routine Testing for Patients with Asymptomatic Severe Blood pressure Elevation in the ED	Karras et al Ann Emerg Med. 2008 Mar;51(3):231-9. Epub 2007 May 11.	109 enrolled patients in 3 urban academic med centers with 2 measurements of >180/110	Prospective, observational, cross sectional study	Outcomes- Unable to safely recommend eliminating any one test for end-organ damage due to small sample size	Only 6 patients had unanticipated abnormalities that altered med decisionmaking or short-term outcomes	92% black, primarily uninsured Small study Inconsistencies in procol

Clinical Bottom Line:

Studies show that pain and anxiety may play a slight role in blood pressures in the ED, but they are very frequently elevated at follow-up in non-ED settings. There is no evidence that lowering BP in the emergency department will prevent poor outcomes in asymptomatic patients. Referral and close follow-up (i.e. serial b.p. assessments) is likely to be associated with better outcomes than using the ED as a source of initiationof treatment in the asymptomatic patient. In our patient population however, f/u is not often assured and it may be appropriate to start those with 2 readings of >160/90 on an oral medication that is generally well tolerated and inexpensive (i.e. HCTZ).