

Hypertension Update

September 19, 2006

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35F admitted s/p multidrug overdose has a BP of 166/95

You can diagnose HTN if which of the following is true:

- a. Two further BP readings are $> 140/90$
- b. She has diabetes and a SBP > 140
- c. She has SBP > 120
- d. She has DBP > 90
- e. You cannot officially diagnose hypertension at this time

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- d. She has DBP > 90
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What other factors may influence her blood pressures at this time?

Hypertension: Defined

Average of 3 or more properly measured blood pressures over a period of weeks to months

- Normal <120/80

- Prehypertension 120-139/80-89

- Hypertension
 - Stage 1 140-159/90-99
 - Stage 2 ≥160/≥100

“...properly measured...”

- Cuff size
- Bilateral
- Confirm with manual
- No recent caffeine or smoking

Hypertension: Risk Factors

Essential Hypertension

- Sodium intake
- Excess alcohol
- Genetic factors
- Obesity
- Race

This same patient is voluntarily readmitted one month later for SI:

Her blood pressures continue to read SBP 150-160s.

You want to initiate a work up so you order:

- a. Hct
- b. Chem 7
- c. Urinalysis
- d. EKG
- e. Fasting Lipid Panel
- f. All of the above

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You discuss her options for treatment and recommend:

- a. HCTZ 25mg PO QD
- b. Weight reduction
- c. Dietary Na reduction
- d. Increased physical activity
- e. Decrease EtOH intake to ≤ 1 serving/d
- f. All the above
- g. 3-6 month trial of any of b thru e

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Hypertension: when to prescribe

- Failed non-pharmacologic treatments
- Diabetics ($>130/80$)
- Chronic renal insufficiency ($>130/80$)

Hypertension: Reason to Treat

- Reduced incidence of stroke (35-40%)
- Reduced incidence of MI (20-25%)
- Reduced incidence of heart failure (50%)

- NNT to prevent one death if reduce SBP by 12mmHG for 10 years

**44M with BPs consistently > 150/90
and a h/o diabetes:**

You recommend to your patient:

- a. a medicine consultation
- b. HCTZ 12.5mg PO QD
- c. HCTZ 50mg PO QD
- d. Lisinopril 40mg PO QD
- e. Lisinopril 10mg PO QD
- d. Metoprolol 25mg PO BID

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Hypertension: Front Line Medications

- Thiazide diuretic (HCTZ)
- ACE inhibitor (lisinopril)
- ARB (losartan)
- β -blocker (atenolol)
- Calcium channel blocker (amlodipine)

Compelling Indications

- Heart failure
- Post MI
- High CVD risk
- Diabetes
- Chronic kidney disease
- History of CVA
- Thiazide diuretic (HCTZ)
- ACE inhibitor (lisinopril)
- ARB (losartan)
- β -blocker (atenolol)
- Calcium channel blocker (amlodipine)

Because you are starting an ACE Inhibitor, you follow:

- a. Potassium
- b. Creatinine
- c. Renin levels
- d. A and B
- e. All the above

Because you are starting an ACE Inhibitor, you follow:

- a. Potassium
- b. Creatinine
- c. Renin levels
- d. A and B**
- e. All the above

Identify the appropriate monitoring:

- Thiazide diuretic (HCTZ)
- ACE inhibitor (lisinopril)
- ARB (losartan)
- β -blocker (atenolol, metoprolol)
- Calcium channel blocker (amlodipine)
- Electrolytes
- Heart rate
- Kidney function
- Monthly follow up for blood pressure

Match the medication to its potential side effect

- Thiazide diuretic (HCTZ)
- ACE inhibitor (lisinopril)
- ARB (losartan)
- β -blocker (atenolol)
- Calcium channel blocker (amlodipine)
- Angioedema
- Lower extremity edema
- Hypokalemia
- Bronchospasm
- Hyperkalemia

48M admitted to 5EC. Two days ago he was found walking across the 99 viaduct. He reports he was running from the CIA. Further history is unavailable. He has had BPs in the 130s to 160s since admit. Currently he is complaining of a severe headache and is screaming that George W is trying to take over his brain.

VS BP 240/125 HR 107

You order Ativan 2mg IM STAT. He stops screaming but still complains of a headache. Repeat VS BP 230/120. What do you do now?

- a. Start an IV
- b. Check an EKG
- c. Give hydralazine 10mg IV x 1
- d. Give lasix 40mg IV x 1
- e. a, b and c
- f. a, b and d

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- f. a, b and d

Recognizing Hypertensive Emergency

- Signs of end-organ involvement
 - Headache
 - Neurologic symptoms
 - Chest pain
 - Anuria

When do we get excited...

- Hypertensive Emergency
 - Symptoms present
- Hypertensive Urgency
 - 230/120

Initial Approach to Hypertensive Emergency

- IV
- EKG

- Lasix
- Labetalol/Hydralazine
- Nitro-Paste

29F admitted three days ago, develops altered mental status, tremulousness and agitation. VS BP 170/98 HR 128. You decide to treat with:

- a. Lasix 40mg IV x 1
- b. Hydralazine 5-10 mg IV x 1
- c. Ativan 1-2 mg IV/IM
- d. HCTZ 25mg PO QD
- e. Metoprolol 25mg PO QD

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Hypertension in Alcohol Withdrawal

- Autonomic instability
- Can be the most prominent symptom
- Typically occurs 48-96hr from last EtOH
- Usually responds to benzodiazepines

78F admitted to 5EC as gravely disabled. On intake, her BP is noted to be 155/92. Review of her record reveals no prior history of hypertension. Your thorough medical student reports her BPs were in the 100-110/50-60s her last admit.

Hypertension in the Elderly

- 1st rule out orthostasis
- Medications to avoid/use with caution
 - Diuretics
 - Alpha-blockers (i.e. terazosin)
- Preferred first line medications
 - ACE-Inhibitors
 - β -blocker
 - Calcium channel blockers

43M admitted for acute worsening of psychosis with a history of schizophrenia since the age of 18. He also has a history of hypertension diagnosed 6 months ago. Since he has been started on Lisinopril 20mg PO BID, Metoprolol 100mg PO BID, HCTZ 25mg PO QD and Clonidine 0.1mg PO BID.

On admit and thru HD 2, his BPs range 150-180s/90-105 despite your having continued all the above meds.

When to suspect Secondary Hypertension

- HTN refractory to multiple medications
- Unexplained hypokalemia
- Symptoms consistent with:
 - Pheochromocytoma
 - Cushing's syndrome
 - Hyper/Hypothyroidism
 - Hyperparathyroidism
 - Sleep apnea