Challenges in Hypertension Management

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Objectives:

• Identify potential contributors to difficult to manage hypertension

• Review some diagnostic and therapeutic options for resistant or refractory HTN
55 y.o. African American male sent to ER from orthopedic office after football thumb injury 250/120. He is asymptomatic. Creatinine 1.6.
In ER given amlodipine 10 mg daily.

At new PCP visit, BP 220/110. Added hctz 25 mg/triamterene 37.5 mg qd

2 weeks later, at cardiology visit:
Bilateral BP 228/118. HR 100. BMI =22.
No family history of HTN
• Medication compliance

• Emotional stressor, white coat hypertension

• Regular aerobic activity/exercise

• Obesity

• High salt intake

• Nsaid, stimulant, ETOH
What labs would you check?
• Creatinine, urine analysis
• Fasting glucose, lipids
• EKG

What medication could you use?
• Diltiazem or verapamil
• Ace-inhibitor/lisinopril
• clonidine 0.1 mg bid
76 year old female referred for elevated BP.

- History of HTN and anxious at office visits.
- Elevated BP with stress and at night: headache, flushing, palpitations
- Mild dyspnea with more than ordinary exertion. Not active, caregiver for chronically ill husband.

- BP 220/120 HR 56 bpm. BMI 19.
- BMP normal. EKG sinus bradycardia, LVH
Medications: HCTZ 25 mg qd, benazepril 40 mg qd, felodipine 10 mg qd, atenolol 25 mg qd.

What tests would you consider?
• TSH
• 24 hour urine catecholamines, plasma metanephrine
• Echo
Would medications could you add/switch to?

- Chlorthalidone or Indapamide
- Spironolactone
- Hydralazine
- Clonidine
- Labetalol
Chlorthalidone & Indapamide

- More potent, -5 mm Hg > HCTZ
- Longer duration, 24 hr vs. 6-12 hr

- Hypokalemia 8%

- 12.5-25 mg chlorothalidone, 1.25-5 mg indapamide
Spironolactone & Eplerenone

Spironolactone
• 25-50 mg daily, max 100 mg daily
• Caution increased Cr, K (including Ace-I), elderly >25 mg/day
• Recheck Cr, K
• Breast tenderness, gynecomastia

Eplerenone:
Initial 50 mg /daily. Max 50 mg bid. 
*moderate CYP3A4 inhibitors:* Initial: 25 mg once daily; Max25 mg twice daily
No breast side effects
Same precaution re: hyperkalemia
What next?

- Chlorothalidone 12.5 mg qd (for HCTZ) → 25 mg qd
- Spironolactone 25 mg qd
- 24 hour amb BP monitor avg BP 145/83, no change in meds
58 y.o. male with HTN, hyperlipidemia, former smoker referred by urologist for recent BP not controlled.

history of kidney stones, gout

He travels a lot for work, mostly sedentary job.

Bilateral BP 210/95. HR 58 bpm. BMI 35  Cr 1.8

Medications: metoprolol xl 50 mg daily, lisinopril 20 mg qd, amlodipine 10mg qd, asa 81 mg qd, atorvastatin 40 mg qd
With lifestyle changes, what else would you consider:
• Renal artery ultrasound
• PTH, calcium
• Screen for sleep apnea

What medications could you add/change:
• Hydralazine
• Clonidine
• Labetalol
Hydralazine

- Initial dose 10-25 mg tid-qid. Maximum 200 mg/day

Uses/limitations
- With nitrates ischemic CMY/HTN
- Side effects: flushing, LE edema
- Drug induced SLE. glomerulonephritis
- Blood dyscrasias (RBC/WBC count, purpura)
Clonidine

- Initial: 0.1 mg bid. Maintenance~ 0.2-0.6 mg in divided doses

Precautions
- Elderly: 0.1 mg daily. Potential bradycardia, drowsiness, fatigue, orthostatic hypotension

- severe renal failure: prolonged half-life
Labetalol

• Initial 100 mg bid, increase q 2-3 days by 100 mg bid
• Not to exceed 200 mg bid increase
• Max 2400 mg daily
Secondary causes HTN

- Obstructive sleep apnea
- Renal parenchymal disease
- Primary aldosteronism
- Renal artery stenosis
- Pheochromocytoma
- Cushing's disease
- Hyperparathyroidism
- Aortic coarctation
Summary

• Screen for contributors to HTN

• Consider secondary causes HTN

• Besides thiazide, Ace-1/ ARB, CCB, consider: Chlorthalidone, spironolactone, labetalol, hydralazine, clonidine

• Monitor side effects esp in elderly, renal insufficiency