Approaches to the Management of Difficult-to-Control Hypertension

Theodore D Fraker, Jr, MD
Professor of Medicine
The Ohio State University Medical Center
Approaches to the Management of Difficult-to-Control Hypertension

Case Study: DM
- 64 year old AAM seen on 10/4/2006
- Hypertensive since 1978; BP’s as high as 250/110; ? failed on Olmesartan
- BP 126/82 on lisinopril and diltiazem in unknown doses
- Mild carotid tardus and III/VI SEM; A2 preserved
- LDLc 153 mg%

Follow-up Visit #1
- BP 158/82 on lisinopril 80 mg and diltiazem CD 360mg bid
- Echo shows mild AS; peak flow 3.5 m/sec
- Rx: added HCTZ 25 mg and atorvastatin 40 mg
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- Follow-up visit #3:
  - BP 182/90 (“forgot” to take his medicines)
  - BP “running about” 160/80 at home
  - Rx: added labetalol 200 mg bid (carvedilol not yet generic)

- Follow-up visit #4 (12/1/2006):
  - BP 112/66; pulse 56; mild ankle edema R>L
  - Rx: diltiazem CD 360 mg bid, lisinopril 80 mg qd, HCTZ 25 mg and labetalol 200 mg bid
  - Stopped diltiazem
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- **Visit #5 (May of 2007):**
  - BP 136/82
  - Lisinopril 80 mg, HCTZ 12.5 mg, diltiazem 360 mg bid and labetolol 300 mg bid (meds changed by PCP)
  - Atorvastatin stopped due to patient “concerns”

- **Visit #6 (November 2007):**
  - BP 142/78
  - Not taking lisinopril or HCTZ but still on diltiazem CD 360 mg bid and labetolol 600 mg bid
  - Back on Atorvastatin
  - Renal MRA is normal
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- Visit #7 (December 2007):
  - Home BP running 190/85 and he is worried
  - “Hates” labetolol but takes it (with diltiazem 360 mg bid)
  - BP 162/90
  - Rx: added losartan/HCTZ 100/25

- Visit #8 (January 2008):
  - BP 130/75; II/VI SEM; no edema
  - Losartan/HCTZ 100/25, labetolol 300 mg bid and diltiazem 360 mg bid (complains about expense of labetolol)
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- Visit #11 (May of 2010):
  - Diagnosed with gout in April of 2009; HCTZ stopped
  - Developed type II diabetes
  - BP 144/72 on valsartan 320 mg, diltiazem 360 mg bid, glucophage and lipitor
  - Labetolol changed to carvedilol 25 mg bid

- Visit #12 (June of 2010):
  - Colonoscopy cancelled due to “irregular pulse”
  - Complains of chest pain and dyspnea
  - BP 152/76; mild JVD; aortic murmur unchanged
  - Rx: add lasix 20 mg (watch for recurrent gout)
  - Stress SPECT scheduled
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- Visit #13 (December 2010):
  - Multiple missed appointments
  - BP 164/92 on carvedilol 25 mg bid, valsartan 320 mg, diltiazem CD 360 mg bid and HCTZ 12.5 mg (?????)
  - Rx: stop HCTZ, add lasix 20 mg, add minoxidil 2.5 mg bid, add allopurinol 100 mg

- Visit #14 (January 2011):
  - BP 192/90 on HCTZ 12.5 mg (he was confused about the lasix), minoxidil 2.5 mg qd (not bid), valsartan 320 mg, carvedilol 25 mg bid, and diltiazem CD 360 mg bid
  - Rx: minoxidil 5 mg bid, back to lasix not HCTZ
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- Visit #15 (late January 2011)
  - Pt complains of ankle edema and nocturia
  - BP 158/70 on valsartan 320 mg, carvedilol 25 mg bid, and diltiazem CD 360 mg bid, minoxidil 5 mg bid and lasix 20 mg
  - Rx: change lasix to 40 mg and decrease minoxidil to 2.5 mg bid

- Visit #17 (April 2011):
  - BP 184/88 allegedly taking all meds
  - Rx: minoxidil increased to 10 mg bid
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- May 2011 – “All Hell breaks loose”
  - Presents to PCP’s office with 3+ pedal edema
  - Sent to local hospital for “heart failure”
  - BNP is 59; cardiac cath reveals mild AS and mild CAD; renal angio normal; started on pradaxa

- Visit #18 (May 2011):
  - BP 142/70 on lasix 40 mg, minoxidil 10 mg bid, valsartan 320 mg, and diltiazem CD 360 mg bid (no carvedilol)
  - Denies dyspnea but still has 1+ pedal edema
  - Rx: Stop diltiazem and restart carvedilol plus spironolactone 12.5 mg
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- Visit #19 (July 2011):
  - BP 134/70 on lasix 40 mg, spironloactone 12.5 mg, minoxidil 10 mg bid, valsartan 320 mg, and carvedilol 25 mg bid
  - Feels well – no edema
  - Next step? (Cheaper ARB?????)
    - Valsartan ~ $50/mo
    - Carvedilol - $4/mo
    - Minoxidil ~ $30/mo
    - Furosemide - $4/mo
    - Spironolactone - $4/mo
What Have I Learned About Blood Pressure Management?

- Trial and error
- Too many cooks...
- Cost matters
- Circumstances change
- Many reasons for “noncompliance”
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- Step 1 therapy: thiazide diuretics
- Step 2 therapy: all other drugs
  - ACE-I/ARB’s
  - Calcium channel agents
  - Alpha/beta blockers
  - Direct vasodilators
  - Beta blockers
  - Alpha blockers
- Step 3 therapy: Minoxidil
  - Can be a dangerous drug
  - Must use a concomitant loop diuretic and beta blocker
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- A word about Beta Blockers:
  - Probably not appropriate step 1 therapy except post-MI or for CHF
  - Associated with weight gain, insulin resistance, increased risk for developing diabetes
  - No solid data showing long-term benefit in reducing stroke or MI
  - Some data suggesting increased stroke risk associated with beta blocker-induced bradycardia

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