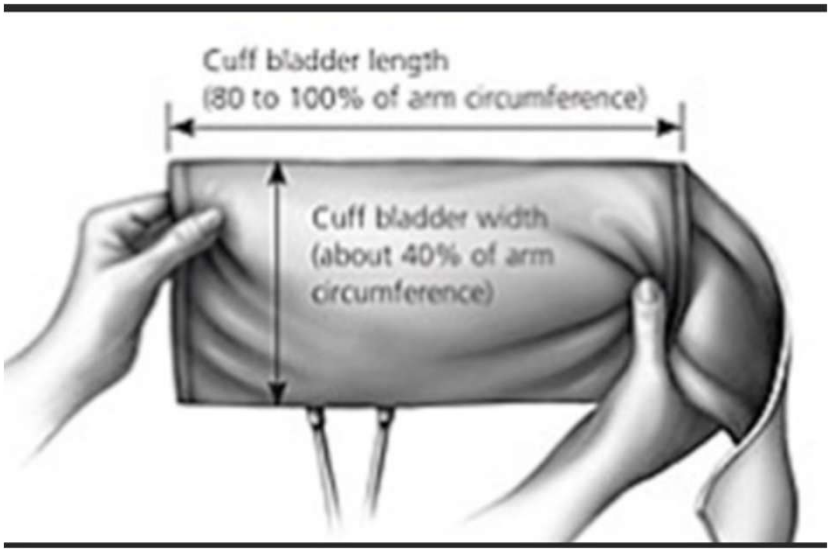
Correct Measurement



- Relaxed for 5 mins, not talking
- Seated with feet on floor, back supported.
- Arm at heart level and supported
- 1-2 inches above antecubital fossa
- Should be able to fit 2 fingers between cuff and skin once done up
- Cuff correct size (bladder should encircle at least 80% of arm)
  - *Too small over estimates BP, too big under estimates*

- Back unsupported → +6–10 mmHg
- Legs crossed → +2–8 mmHg
- Full bladder → +10 mmHg
- Wrong cuff size → ±10–20 mmHg

What general considerations could you ask/discuss with Charlie?

Lifestyle Risk factors:

BMI, Sedentary lifestyle, High alcohol intake, High salt intake (>6g/day), stressors, drugs

Atherosclerosis risk factors:

Smoking, family history of vascular disease, cholesterol, diabetes

Essential HTN or Secondary HTN?

- 95% of patients will have Essential Hypertension
- Family History is a good clue

Consider:

- Renal: CKD or GN
- Endocrine: Cushings, Conn's, Phaeo, Acromeglay, DM, Thyroid
- Drugs: OCP, Steroids, NSAIDs, decongestants, stimulants, SNRIs caffeine,
- Pregnancy:
- OSA:

Further Questions to Ask Charlie

Palpitations,

Flushing,

Headaches,

Sweating,

Snoring/tiredness,

OTC Medications, Recreational drugs, Liquorice

Examination

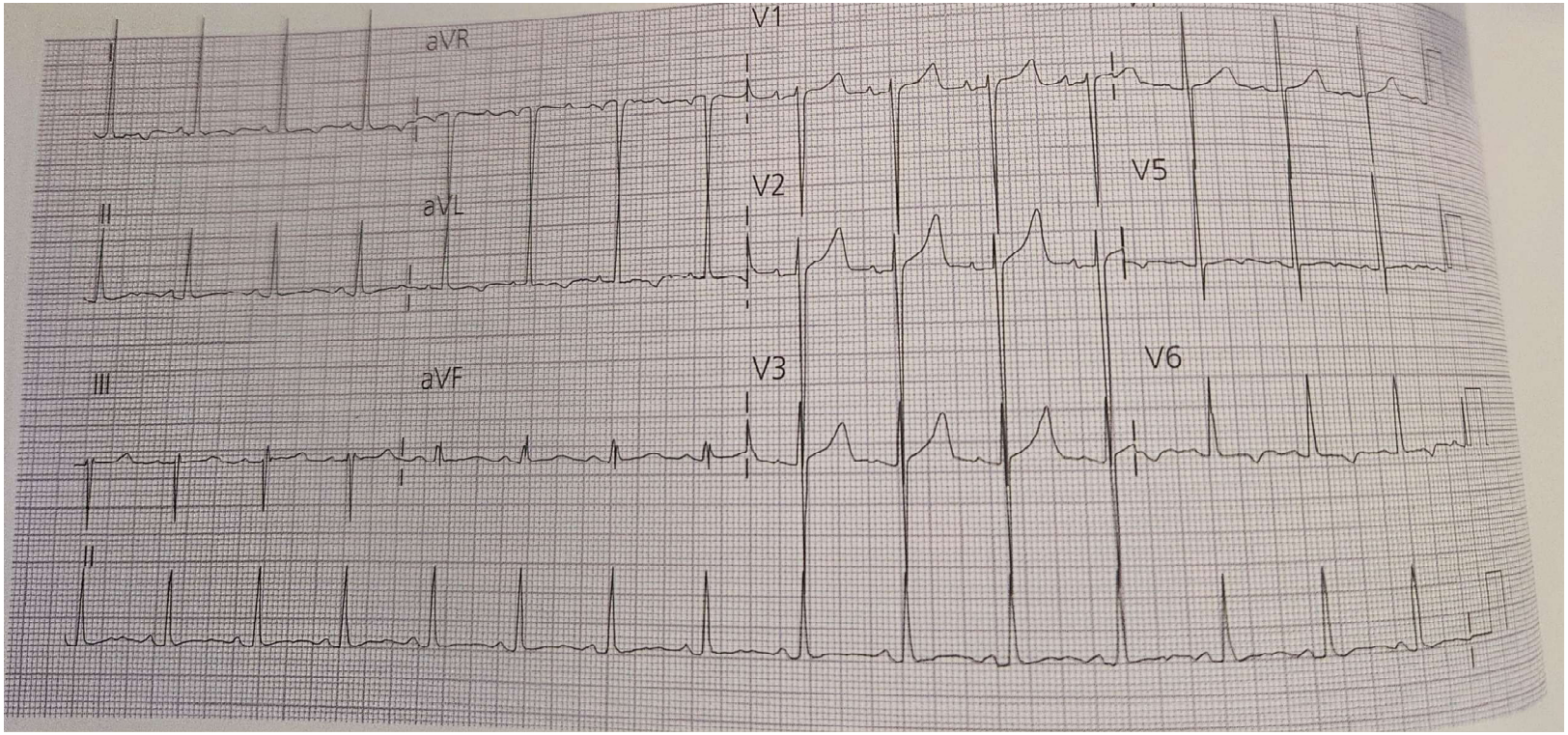
- No xanthoma or xanthelasma
- HR 90/min, regular, BMI 31
- JVPNE, apex difficult to palpate, HS dual with soft systolic murmur at LSE, no radiation
- Chest – somewhat hyperinflated but otherwise normal
- Abdo – central adiposity, no organomegaly or masses, no bruits

- Optometry report – Grade 3 hypertensive retinopathy with flame haemorrages and AV nipping.

What investigations?

- Initial Ixs are to assess for end organ damage and screen for common associations.
- Urine – MSU and uACR
- Blood:
  - Sodium and potassium
  - Creatinine and eGFR
  - TSH
  - FBC
  - HbA1C
  - Cholesterol
  - Liver function tests
- ECG –

Comment on his ECG

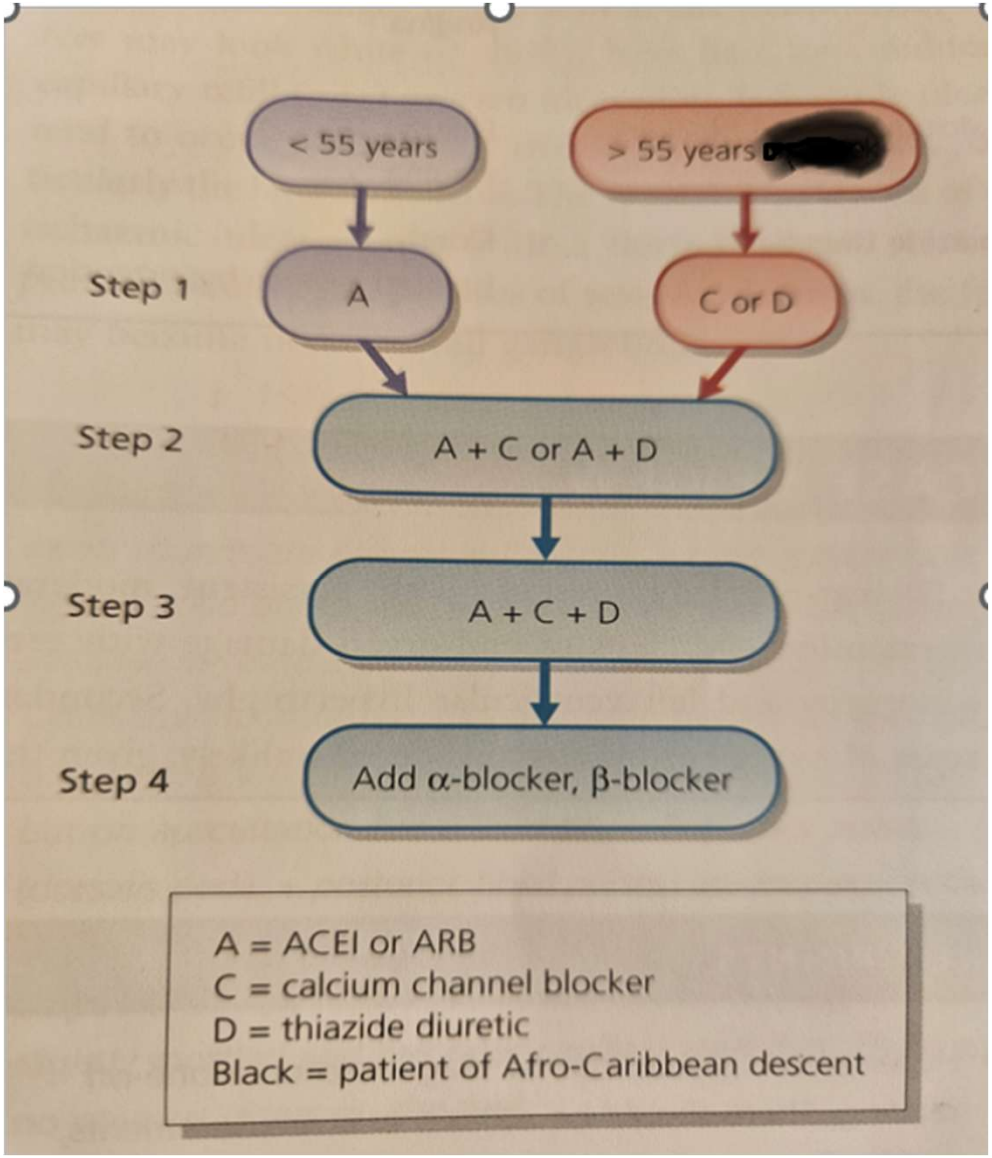


Sinus rhythm, LVH (S in V2 + R in V5 >3.5mm), Strain (TWI V5-6 and aVL

All Charlie's Labs and History are Negative: Should his HTN by treated?

- Yes, He has CVD risk and end organ damage
- Regardless, if office BP ≥ 160 mmHg systolic or ≥ 100 mmHg diastolic (≥ 150/95 on ambulatory or home monitoring) **after lifestyle modifications**, treat.

- **What Anti-Hypertensive to start?**
- aged < 55 years, use:an angiotensin-converting enzyme inhibitor (ACE inhibitor) or an angiotensin-II receptor blocker (ARB).


< 55 years
> 55 years
Step 1
A
C or D
Step 2
A + C or A + D
Step 3
A + C + D
Step 4
Add α-blocker, β-blocker
A = ACEI or ARB
C = calcium channel blocker
D = thiazide diuretic
Black = patient of Afro-Caribbean descent

For Charlie

- Candesartan 8mg od
- Check electrolytes and creatinine in 2 weeks and when increasing the dose
- Also check electrolytes and creatinine if/after he starts a thiazide
- Review BP monthly and titrate meds until BP stable on target

< 130/80mmHg

4 months later Charlie comes back

He is taking:

- Candesartan 32mg od
- Bendrofluazide 2.5mg od
- Amlodipine 10mg od

Still smoking, now walks 30mins 3x/week

Not thought about his diet

BP in office is 150/89mmHg

- Does he need referral to secondary care?

When to Refer

- Resistant hypertension (Blood pressure > 140/90 despite good adherence to **maximally tolerated triple** anti-hypertensive therapy).
- Age < 30 years.
- Suspicion of secondary cause.
- Uncertain whether drug treatment should be initiated.

If you're reaching for drug #4, renal involvement is reasonable

Case 3

- Clara a 43 year old female presents to her GP complaining of ankle swelling for quite some time
- Has been seeing the practice health coach about weight loss, trying to exercise but gets easily SOB

On Examination:

- Afebrile, 90/min, BP 145/90mmHg
- BMI 39.5kg/m2
- Pitting oedema to mid thighs

- No obvious rashes
- JVPNE
- Very Quiet Heart Sounds
- Reduced Resp expansion bilaterally, dull PN right base with ↓ breath sounds
- Abdo unremarkable apart from large apron
- Urine dipstick 4+ protein,

What could be the cause of her quiet heart sounds?

- Fluid
  Pericardial Effusion- Beck's Triad (↑JVP, ↓BP, quiet HS)
- Air
  - COPD, Asthma
- Fat