LOTHIAN HYPERTENSION GUIDELINES 2022

A Guide to Practice in Lothian, reissued January 2022 in line with updated NICE Guidelines

(applies to all adults, including those with type 2 diabetes (T2DM))

Prof P Ranasinghe, Dr J McCrae, Dr I MacIntyre, Prof S Maxwell, Prof B McKinstry, Prof M Strachan & Prof D Webb for the Lothian Hypertension Group

Further local advice is available through referral via RefHelp

BLOOD PRESSURE (BP) MEASUREMENT (https://www.bloodpressureclinic.ed.ac.uk/hierarchy)

All adults should have BP measured every 5 years (annually in T2DM). Ambulatory BP monitoring (ABPM) should be used to *confirm* hypertension in all patients suspected of having stage 1 and 2 hypertension with clinic BP measurement. Home BP (HBPM) monitoring for 4 – 7 days† is an alternative for patients who are unable to use ABPM. Initially, measure BP in both arms and if the difference is >15 mmHg on repeated measurement, measure subsequent BPs in the arm with the higher reading. Advise on, or train in, use of HBPM in those who wish to check BP at home with a properly validated device.

Stage 1 Hypertension	Clinic BP is ≥140/90* & confirmed by subsequent ABPM daytime or HBPM† average ≥135/85
Stage 2 Hypertension	Clinic BP is ≥160/100* & confirmed by subsequent ABPM daytime or HBPM† average ≥150/95
Severe Hypertension	Clinic systolic BP is ≥180* *or* clinic diastolic BP ≥120*†

* Based on several readings to prevent over-diagnosis in white-coat hypertension, † Use Lothian HBPM diary

ASSESSMENT

A full assessment is necessary in patients with confirmed hypertension. This will focus on *potential secondary causes, alcohol,* other *vascular risk factors* and evidence of *end organ damage*.

- History – vascular disease, drugs, family, lifestyle
- Examination – arrhythmias, heart failure, fundoscopy
- Urine for blood, protein, glucose & alb:creat ratio
- Blood glucose or HbA1c
- Electrolytes, creatinine & eGFR
- Total and HDL cholesterol
- ECG
- Uric acid

Estimation of Cardiovascular Disease (CVD) Risk: Modern management is focused on assessing 10-year CVD risk. This can be calculated using QRISK3 or the Scottish ASSIGN score.

MANAGEMENT

Lifestyle measures may help (i) to reduce BP and (ii) to improve CVD risk factor profile. Therefore, these are recommended for all stages of hypertension, irrespective of drug treatment. Periodic reminders are important.

- Weight – aim for BMI 20 – 25 kg/m^2
- Alcohol – safe weekly limits (<14 units)
- Diet - ↓ salt (<6g/day), ↓saturated fat, ↑fruit & vegetables (≥ 5 portions/day), ↑oily fish (at least 1 portion per week)
- Exercise – ideally 30+ minutes 3 times per week
- Smoking – cessation vital to ↓ overall CVD risk; nicotine replacement therapy or e-cigarettes may help

DRUG CHOICE

Most patients will require more than 1 drug. Reduction of BP is the key determinant of benefit, not the specific drugs used to achieve it. Check and support adherence before treatment escalation. The following algorithm provides a logical guide to escalate treatment but should be modified according to circumstance:

Step 1	Start CCB (amlodipine 5 – 10mg) if aged >55 years or black patients of any age without diabetes; Start ACEI (lisinopril 10 – 40mg) if aged <55 years or in any patient with diabetes
Step 2	Combine CCB (amlodipine) + ACEI (lisinopril)
Step 3	Add thiazide-like diuretic (indapamide IR 2.5mg or MR 1.5mg) to CCB + ACEI
Step 4	Confirm resistant HT with HBPM/ABPM; Consider specialist referral; Add spironolactone (12.5 – 25mg) if serum K+ is ≤4.5 (recheck U&Es 2 – 4 weeks later ensuring K+ ≤5.5); If intolerant of spironolactone, consider amiloride (10 – 20mg); If serum K^+ is ≥ 4.5 consider beta-blockers (bisoprolol 1.25 – 20mg) or alpha-blockers (doxazosin 1 – 16mg)
Step 5	Refer for specialist advice (RefHelp)

Brief notes

Angiotensin II receptor blockers (ARB; candesartan 8 – 32mg or losartan 25 – 100mg) are reserved for ACEI-intolerant patients or black patients.

Indications for particular drugs include: ACEi/ARB for impaired LV function, post MI and diabetic nephropathy; beta-blockers post-MI and in patients with angina (bisoprolol 1.25 – 20mg; or carvedilol 12.5 – 50mg specifically in patients with impaired LV function); thiazide-like diuretics in those at risk of heart failure.

In general, it is reasonable to double doses of anti-hypertensive drugs (e.g. lisinopril 10, 20, 40mg; candesartan 8, 16, 32mg)

Other drugs to consider

- **Aspirin 75mg** - if vascular disease is present
- **Statins** – atorvastatin 20mg for primary prevention, atorvastatin 40 – 80mg for secondary prevention. If vascular disease is present *or* diabetes *or* high CVD risk (>20% over 10 year), target TC <5.0 or 25%↓.

  Note: If patient is prescribed amlodipine, diltiazem, verapamil or amiodarone, maximum dose atorvastatin is 20 – 40mg depending on the co-prescribed drug
- **NSAIDs -** stop where possible.

Reasons to Consider Specialist Referral

- Secondary hypertension possible – young patients (less than 30 years of age), failure to achieve targets on 3 drugs (treatment-resistant hypertension), hypokalaemia, abnormal renal function
- Pregnancy
- Multiple drug side-effects
- Biochemical adherence testing
- Complicated risk assessment
- Established vascular disease

DRUG TREATMENT THRESHOLDS

Stage 1 Hypertension that does not meet below criteria *or* BP <140/90

Reassess in 3 – 5 years

Stage 1 Hypertension

- Treat if <80 years and having 1 or more of:
  - Target organ damage
  - Diseases - Diabetes mellitus, Renal disease, established CVD,
  - 10-year CVD risk >10%
- Treat ≥80 years if repeated clinic BP >150/90

Severe Hypertension (urgency) *or* confirmed Stage 2 Hypertension } ***Treat***

Hypertensive Emergency → *Refer for Admission*

- Annual assessment recommended in those requiring treatment.
- Clinic BP that remains ≥140/90 for those <80 and ≥150/90 for those ≥ 80 years of age is taken as threshold for progression to the next stage of treatment (5mmHg lower with ABPM/HBPM).
- Isolated systolic HT is treated the same as when both systolic and diastolic BPs are raised
- For monitoring, ABPM/HBPM is recommended in those with confirmed white-coat HT.
- Treatment in the elderly is judged based on frailty & benefit from treatment in relation to reduction of stroke risk & heart failure.
- Checking postural changes in BP is recommended in T2DM, age>80 years & if symptoms present (If postural hypotension is present, treatment target is based on standing BP)
- In some it may be useful to check biochemical testing for adherence, through referral to our service (RefHelp)

Criteria for Admission (hypertensive emergencies)

Diagnosis made by;

a) presence of severe hypertension *and*

b) evidence of acute/accelerated target organ damage

e.g. new onset confusion, chest pain, signs of heart failure, acute kidney injury, or haemorrhages/papilloedema on fundoscopy.

Note: Same-day specialist review also recommended in suspected phaeochromocytoma

Further Information: Lothian Hypertension & Lipid Clinic; NICE Hypertension Guidelines; British & Irish Hypertension Society; Validated home BP monitors; Lothian Lipid Guidelines