Hypertension (HT)

HYPERTENSION

SCREENING

Check blood pressure (BP) annually in everyone 15 years and over.

TIP: the BP cuff must be the right size for the arm.

The first ever BP should be taken on both arms and the arm with highest measurement documented and used thereafter.

A cuff which is too small (doesn't wrap around the arm easily) will result in artificially high BP readings, while a cuff which is too large may slip off.

SO:

- Have large BP cuffs available in all clinics – these will be suitable for most adults.
- Use a standard adult cuff for smaller arms.

CASE DEFINITION

BP >140/90 on multiple measurements on separate occasions

NB: Malignant hypertension requires urgent intervention (see refer/discuss). It is defined as retinal haemorrhages, exudates and/or papilloedema (and is usually associated with systolic BP of >180 or diastolic BP >120)

ASSIGN CVD RISK CATEGORY

Need to calculate probability of Cardiovascular event as LOW, MODERATE, HIGH or VERY HIGH for each patient to decide appropriate management plan:

STEP 1) ASSESS GRADE OF HYPERTENSION

	SYSTOLIC and / or DIASTOLIC	
High normal	120 - 139 mmHg	80 - 90 mmHg
Grade 1	140 - 159 mmHg	90 - 99 mmHg
Grade 2	160 - 179 mmHg	100 - 109 mmHg
Grade 3	> 180 mmHg	> 110 mmHg

STEP 2) RECORD NUMBER OF OTHER RISK FACTORS

- Male > 55 years or female > 65 years.
- Smoking.
- Dyslipidaemia.
- Diabetes
- History of premature heart disease in 1st degree relative i.e. men < 55 yrs, women < 65 yrs.
- Obesity ie waist >80cm females, >94 cm males, BMI >25kg/m2.
- Aboriginal or TSI.
- Unsafe alcohol consumption. (see healthy living protocol).
- Family member with familial hypercholesterolaemia.
- Non ischaemic cardiac disease (eg AF, myopathy).
- Patient aged 75 yrs or older.
- Sedentary lifestyle.

STEP 3) AUTOMATICALLY ASSIGN VERY HIGH CVD RISK CATEGORY IF ANY OF THE FOLLOWING ARE PRESENT

- BP > 180/110 (Grade 3 Hypertension).
- Isolated systolic hypertension with widened pulse pressure (SBP > 160 and DBP < 70).
- Diabetes Mellitus

  - in all ATSI and non ATSI aged >60yrs

    and/or

  - all diabetics with microalbuminuria.
- Determine CVD RISK for all other diabetics using CV risk calculator - www.cvdcheck.org.au.
- Heart disease including MI, angina, CCF or LVH on ECG.
- Chronic kidney disease / proteinuria.
- A current diagnosis of familial hypercholesterolaemia
- Cerebrovascular/ Carotid artery disease.
- Peripheral vascular disease.
- Advanced retinopathy i.e. haemorrhages or exudates, papilloedema.
- Obstructive sleep apnoea.

STEP 4) FOR ALL OTHERS, USE THE TABLE BELOW or ONLINE RISK CALCULATOR TO CALCULATE CVD RISK CATEGORY

Number of Other Risk Factors / BP	None	1- 2	≥ 3
Normal	low	moderate	high
High normal	low	moderate	very high
Grade 1	moderate	high	very high
Grade 2	high	high	very high
Grade 3	very high	very high	very high

PRINCIPLES OF MANAGEMENT

BASELINE ASSESSMENT:

To identify common causes of secondary HT, assess end organ damage and recognize other CV risk factors.

- BMI and waist circumference.
- ECG.
- CV examination (heart, carotids, peripheral pulses).
- Fundoscopy.
- Electrolytes, creatinine, eGFR, lipids, urine dipstick and ACR.
- Screen for diabetes if not already known to be diabetic.
- If clinical suspicion of secondary hypertension or BP target is not met with maximum dose of 2 agents discuss/refer to the physician who will consider morning cortisol, ESR, urinary catecholamines, renal/ doppler ultrasound and sleep apnea.

All people with evidence of end organ damage require drug treatment.

Everyone with hypertension needs lifestyle review and appropriate lifestyle change advice (see HEALTHY LIVING).

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For further explanation relating to content within this protocol and references click here

Hypertension (HT)

- Encourage smoking cessation.
- Encourage exercise ie. at least 30 minutes of moderate-intensity physical activity on most, if not all, days of the week (daily total can be accumulated e.g. three 10-minute sessions).
- Identify and address other CV risk factors.
- Encourage limited alcohol intake ie. < 2 standard drinks (20g) / day.

THERAPEUTIC GOALS:

Aim to achieve control with one agent (though note that > 50% people will need two or more agents).

PATIENT GROUP	TARGET (mmHg)
People with proteinuria >1 g/day (with or without diabetes)	<125/75
People with associated condition/s or end-organ damage: • ATSI • Coronary heart disease • Diabetes • Chronic kidney disease • Proteinuria (> 300 mg/day) • Stroke/TIA	< 130/80
People with none of the following: • Coronary heart disease • Diabetes • Chronic kidney disease • Proteinuria (> 300 mg/day) • Stroke/TIA	< 140/90

THERAPEUTIC PROTOCOLS

Decide when to start drug therapy according to CVD RISK category:

LOW - repeat BP screen 1 year.

MODERATE - address risk factors (see relevant protocol/s), if BP >140/90 watch BP for 2 months and treat if remains >140/90.

HIGH - address risk factors (see relevant protocol/s), if BP >140/90 watch BP for 2 months and treat if remains >140/90.

VERY HIGH RISK - start treatment immediately

MEDICATIONS

Before increasing medication carefully review adherence to existing therapy.

Trial each regimen for 4 weeks minimum before changing: a stable response to a particular dose takes 3 - 4 weeks.

Start ACE-I ie ramipril 2.5mg daily doubling dose every 4 weeks to a maximum of 10mg daily. If intolerant or ramipril contraindicated, use irbesartan 75mg daily, doubling dose every 4 weeks to maximum 300mg daily.

If target BP still not reached add amlodipine 5mg daily doubling after 4 weeks to maximum 10mg daily. If ankle oedema develops, reduce dose.

THEN ADD atenolol 50mg daily and increase to 100mg daily.

If BP is stil not controlled, discuss with / refer to the Regional Physician for advice.

NOTE: Avoid thiazide diuretics, including combination preparations, as there is high risk and incidence of diabetes, gout and hypokalaemia.

EXCEPTIONS

CKD/proteinuria - use ramipril as above then refer to individual protocol as treatment differs. Avoid thiazide diuretics

Diabetes - Avoid beta blockers if possible, but if felt essential atenolol is preferable.

Avoid diuretics

CAD - early use of atenolol 50 - 100mg daily.

Stable HF (Refer to Heart Failure) - Replace atenolol with bisoprolol 1.25mg daily, doubling the dose every 2 weeks to a maximum of 10mg daily.

FOLLOW UP

Until treatment target reached:

- Check BP, side effects and compliance every 2 weeks.
- Check creatinine and electrolytes 2 weeks after starting or increasing dose of ramipril or irbesartan.

Once stable:

- BP every 3 months.
- Annually check ACR, eGFR, creatinine, electrolytes, glucose and lipids.
- Annually review lifestyle factors (see Healthy Living Protocol).
- ECG every 2 years.

WOMEN OF CHILD BEARING AGE

- Women in pregnancy can have pre-existing hypertension or develop it in pregnancy. Both are managed differently and need to be discussed with obstetrician/physician.
- Women with hypertension are at increased risk of pre-eclampsia. Refer URGENTLY to obstetrician if patient develops proteinuria or other signs of pre-eclampsia
- Encourage presentation early in pregnancy.
- If pregnant, or planning pregnancy, stop all antihypertensive drugs (unless on labetalol, nifedipine, methyldopa, hydralazine or prazosin). Commence methyldopa 250mg bd and discuss with Obstetrician.
- If breastfeeding and requiring ACE-i use enalapril 5mg daily doubling every 2 weeks to maximum dose 40mg daily.

REFER / DISCUSS

TO PHYSICIAN:

- Hypertension uncontrolled on 3 agents.
- Suspected secondary hypertension.
- Malignant Hypertension.
- Intolerance or contraindications to several medications.

HYPERTENSION

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