



MINISTRY OF HEALTH

STANDARD TREATMENT
GUIDELINES, ESSENTIAL
MEDICINES LIST &
ESSENTIAL LABORATORY
SUPPLIES LIST
FOR ZAMBIA

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7.0 CARDIOVASCULAR DISORDERS

7.1 Hypertension

Hypertension is one of the leading public health problems worldwide. It is often asymptomatic, easily detectable, and potentially easily amenable to treatment. Yet, if left untreated it often leads to fatal complications. Since hypertension tends to be asymptomatic, public education about the dangers of hypertension plays a significant role in the overall management of hypertension.

Definition

The World Health Organization defines grade 1 hypertension as office blood pressures ranging from 140–159 mm Hg systolic or 90–99 mm Hg diastolic, grade 2 hypertension as pressures of 160–179 mm Hg systolic or 100–109 mm Hg diastolic, and grade 3 hypertension as pressures equal to or greater than 180 mm Hg systolic and 110 mm Hg diastolic. The baseline figures do not apply to children, diabetic mellitus patients, renal patients and pregnant women (hypertension in pregnancy, refer to chapter 5.6). The frequency of hypertension increases with age.

Risk Factors with Adverse Prognosis

- Black race
- Youth
- Male sex
- Persistent diastolic pressure greater than 115mmHg
- Smoking
- Excess alcohol intake
- Hypercholesterolemia
- Diabetes Mellitus

Classification of Hypertension

The National Heart, Lung, and Blood Institutes classify blood pressure as normal, prehypertension, hypertension stage 1, and hypertension stage 2.

1. Normal (optimal)

Systolic (mmHg)	Diastolic (mmHg)
< 120	< 80

2. Hypertension

Stage	Severity	Systolic Range(mmHg)	Diastolic Range(mmHg)
Prehypertension		120-130	80 - 89
I	mild	140 - 159	90 – 99
II	(moderate-severe)	> or = 160	> or = 100

From the Seventh Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure

Aetiology of Hypertension

- Primary (essential) Hypertension
- Secondary Hypertension

- Systolic Hypertension
- Hypertensive Crises (acute hypertension)

7.1.1 Primary Hypertension

This is hypertension for which there is no specific identifiable cause. About 90% of hypertension cases fall under this category.

7.1.2 Secondary Hypertension

This is hypertension due to a specific underlying condition or conditions. Some of the causes include the following:-

- Renal Parenchymal Diseases
e.g. glomerulonephritis
- Renovascular Diseases
e.g. atherosclerotic (mainly older men) and fibroplastic (mostly younger women) diseases.
- Endocrine Diseases
e.g. pheochromocytoma, Cushing's Syndrome.
- Cardiovascular Disease
e.g. coarctation of aorta
- Pregnancy (gestational hypertension)
- Drugs
e.g. oral contraceptives, erythropoietin, steroids

7.1.3 Systolic Hypertension**7.1.4 Hypertensive Crises**

These are clinical situations associated with blood pressure rising to levels usually above 130 mmHg diastolic. There are two types: hypertensive emergency which is associated with acute end-organ dysfunction (brain, heart and kidneys). In this setting there is a high risk of causing irreversible damage to the brain, heart or kidneys if blood pressure is not controlled within an hour or so. Hypertensive urgency is the other setting with equally markedly raised BP but without significant signs or symptoms suggestive of end organ damage. In this setting BP reduction may be gradual over 24 hours.

Other terms used in this situation are accelerated-malignant hypertension depending on retinal findings during funduscopy examination. If there are haemorrhages and/or exudates on the retina then it is referred to as accelerated hypertension but if there is papilloedema then it is called malignant hypertension. From a therapeutic point of view both forms are treated in practically the same way.

Clinical Features

Hypertension is usually asymptomatic until when it has caused complications and damage to target organs. At this point the symptoms are thus associated with the affected organ.

Symptoms

- Palpitations
- Dizziness
- Shortness of breath
- Blurred vision

Signs

- Tachycardia
- Cerebral vascular insufficiency
- Crepitati Hypertensive
- Retinopathy ons

Complications

- Atherosclerosis
- Cerebral vascular insufficiency
- Cerebral vascular accident
- Congestive heart failure
- Coronary artery disease
- Peripheral vascular insufficiency
- Dissecting aortic aneurysm
- Hypertensive retinopathy
- Hypertensive nephropathy

Management

To document presence or absence of end organ damage to exclude possibility of a secondary cause of hypertension and other co-morbidities.

Investigations

- Urinalysis
- Fundoscopy
- Electrocardiogram
- Chest x-ray
- Echocardiogram
- Urea, creatinine and electrolytes
- Random blood sugar
- Cholesterol

Treatment

The objective of treating high blood pressure is both to prevent and lower cardiovascular related complications such as strokes, renal failure and heart failure.

Hypertension not responding to treatment should be referred to a specialist for further investigations.

Prevention

- ✓ The initial approach to treatment is that of lifestyle modification. i.e. smoking cessation, weight reduction to optimal weight, regular exercise, reduction in alcohol intake, dietary modifications (e.g. salt reduction)

Drugs

Goals of therapy –blood pressure less than 140/90 mm HG and less than 130/80 mm Hg for those with diabetes and chronic kidney disease.

Step 1.

- Start with Diuretics (e.g. Amiloride + Hydrochlorothiazide (5/50mg) orally daily)
or
- Calcium channel blockers (Nifedipine retard 20 mg two times daily orally or Amlodipine 5 -10 mg once daily orally)
or
- Angiotensin converting enzyme inhibitors (Captopril 25-50 mg two or three times daily orally, Enalapril 5-20 mg once daily orally) . Those who cannot tolerate ACE-I may be given Losartan potassium 50-100 mg once daily orally

Step 2.

- Use a combination of drugs from different groups (e.g. Diuretic + ACE I, or Ca channel blocker + ACE I)

Step 3.

- Use a combination of Diuretic + ACE I + Ca channel blocker

Step 4.

- If not controlled as above, optimize the dose, add further diuretic therapy
or
- Alpha blocker (Prazosin 0.5mg two to three times daily orally – initial should be at bed time to avoid postural hypotension – then increase to 1-3 mg two to three3 times daily after three to seven days, maximum daily dose 20 mg)
or
- Add beta blocker – Atenolol 50-100 mg once daily orally, Propranolol 40-80 mg two or three times daily orally
or
- Hydralazine 25-50 mg two or three times daily orally

Beta blockers are no longer preferred as a routine initial therapy for hypertension, however can be used in younger people, patients with cardiovascular risk or existing ischemic heart disease, those with contraindications or intolerance to ACE I, as adjunctive drugs to other antihypertensive.

Emergency – very severe to malignant hypertension:

- Start with Labetalol 50 mg IV over at least a minute, repeated after five minutes if necessary, maximum dose is 200 mg
Or
- Hydralazine 10 mg IV stat followed by 5 mg IV every 30 minutes until diastolic BP is 110 mm Hg or less
- Frusemide 40-80mg IV may be used as adjunctive therapy as a stat dose

7.2 Congestive Heart Failure