



Republic of Zambia
Ministry of Health

NON-COMMUNICABLE DISEASES GUIDELINES



HYPERTENSION AND CARDIOVASCULAR DISEASES



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Volume 2

CHAPTER TWO

HYPERTENSION & CARDIOVASCULAR DISEASES (CVDS)

Cardiovascular diseases are, and will continue to be for some time, the number one cause of death world-wide. According to the WHO, an estimated 17 million people died from CVDs in 2005 accounting for 30% of all global deaths. About 80% of these deaths took place in low and middle income countries, such as Zambia, occurring almost equally in men and women.

Cardiovascular diseases include: Hypertension, Ischaemic Heart Disease (IHD, Heart Attacks, Cerebrovascular Disease, Peripheral Artery Disease, Rheumatic Heart Disease, Congenital heart disease, and Heart failure.

The extent of the risk is significantly influenced by a number of personal and population characteristics that can act separately or in combination. In turn, these characteristics are largely determined by social and cultural factors and are therefore modifiable. They include elevated blood pressure and blood cholesterol, poor nutrition, lack of physical activity and smoking. Even a small reduction in the average blood pressure of the population could bring about a large reduction in disease.

A. HYPERTENSION

Definition

Hypertension is defined as a state of chronically elevated arterial blood pressure, as compared to what is normally expected, as per the defined levels given below.

Classification of Hypertension

Grade	Systolic level (mm Hg)		Diastolic Level (mm Hg)
Normal	< 120	AND	< 80
Pre-Hypertension	120 to 139	OR	80 to 89
Hypertension Grade I	140 to 159	OR	90 to 99
Hypertension Grade II	160 to 179	OR	100 to 109
Hypertension Grade III	≥ 180	OR	≥ 110

Epidemiology

World-Wide: Hypertension is a major public health problem, and affects approximately 1 billion worldwide. As the population ages, the prevalence of hypertension will increase even further.



Zambian Situation: The estimated number of Zambians with hypertension was 4,329,000 in year 2007. The prevalence of Grade I Hypertension estimated at 33.3% (36.6% in males and 31.7% in females) and that of Grade II Hypertension at 16% (14.2% males and 16.9% in females).

Risk factors

Non-Modifiable Risk Factors

- Age
- Sex
- Heredity
- Genetic Factors, and
- Ethnicity

Modifiable Risk Factors

- Dietary Salt
- Central obesity
- Lack of Physical Activity
- Alcohol
- Psycho-social Stress Acute
- Environmental Factors
- White Coat Hypertension

Diagnosis

Clinical Signs and Symptoms

An individual with hypertension may not know they have the condition until it begins to cause trouble to the heart, brain and kidneys.

Therefore be on the lookout for some of the following signs and symptoms:

- Frequent severe headache
- Fatigue or confusion
- Weakness and dizziness
- Pounding of the heart, and
- Irregular heart beats
- Shortness of the breath
- Visual problems



Diagnosing Hypertension

If the clinic blood pressure is $\geq 140/90$ mmHg or higher, offer ambulatory blood pressure monitoring (ABPM) to confirm the diagnosis of hypertension.

When using home blood pressure monitoring (HBPM) to confirm a diagnosis of hypertension, ensure that:

for each BP recording, 2 consecutive measurements are taken, at least 1 minute apart and with the person seated BP is recorded twice daily, ideally in the morning and evening, and BP recording continues for at least 4 days, ideally for 7 days.

Routine Clinical Investigations:

- Urine strip test for blood and protein
- Blood Electrolytes and Creatinine, and eGFR
- Blood Glucose
- Serum Total, HDL and LDL Cholesterol, Triglycerides
- 12 lead ECG
- FBC, FBS

Other Investigations:

- echocardiography
- Abdominal US

MANAGEMENT

Community Level

- Lifestyle Improvement

Primary and Secondary Level Health Facilities

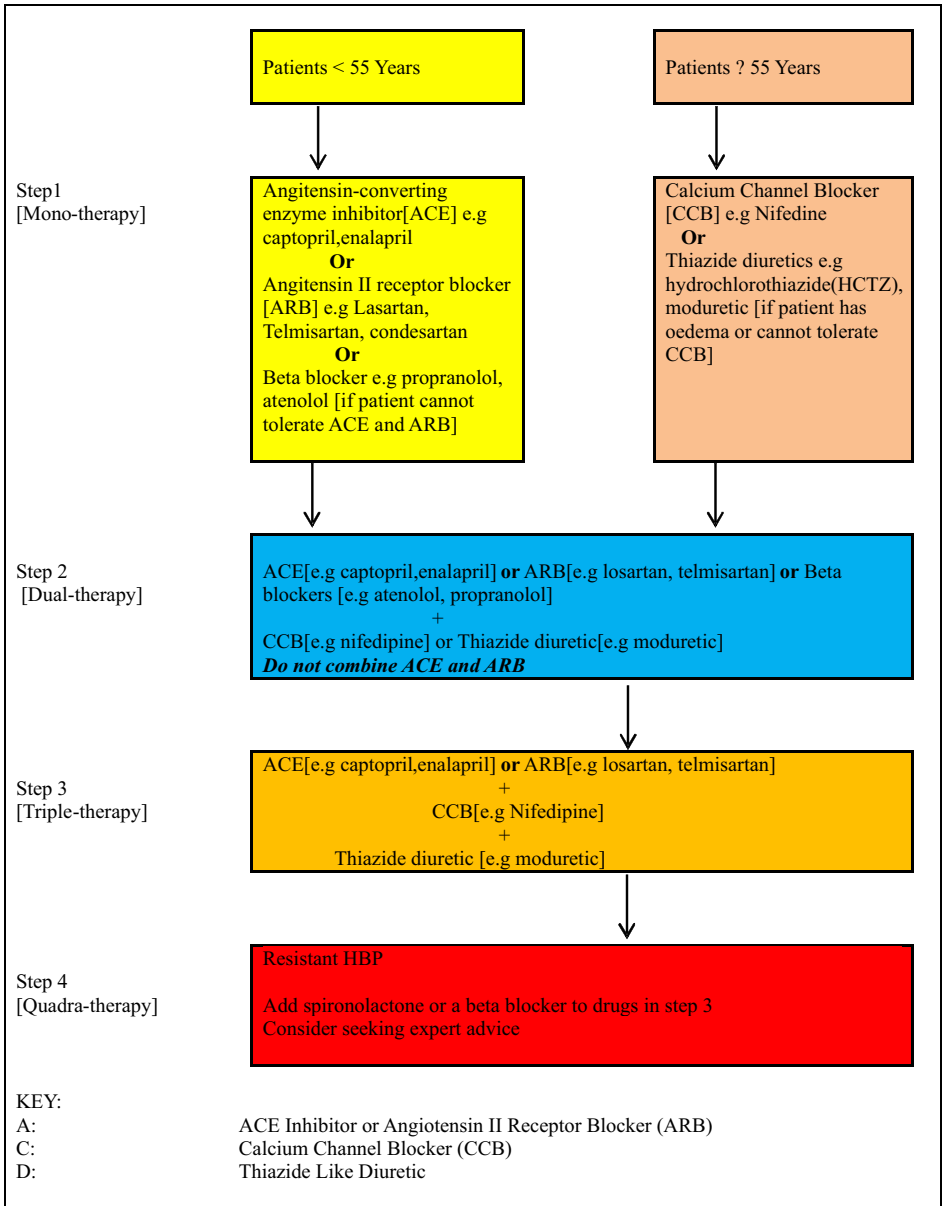
- Lifestyle Measures plus Anti-Hypertensive Medication: see below Flow Chart

Third Level Facilities

- Lifestyle change and antihypertensive drugs



FLOW CHART FOR TREATMENT OF HYPERTENSION



SURVEILLANCE/INDICATORS

Primary Prevention: Public Awareness

The Public Awareness shall:

- Utilize the IEC techniques to educate the community of the dangers of HBP
- Provide the risk factors and adoption of healthy lifestyle
- Utilize the “*Individual High Risk Strategy*”, focusing on individuals at risk of HBP.

Secondary Prevention: Surveillance

This shall be done through early diagnosis and prompt treatment, mainly by way of screening programmes.

Three main strategies shall be used in the surveillance of hypertension, namely:

- Population Screening
- Selective Screening: For people known to be at high risk
- Opportunistic Screening: Employed when high risk individuals come in contact with the health care system.

Tertiary Prevention:

- Follow up
- Advocate for continuous treatment
- Educate them about importance of treatment and the various precautions to be taken by them.

LEGISLATURE

- Enforce uptake of physical training facilities (gymnasia)
- Legislate on foods-salt content, sugar content in foods
- Legislate restaurant meals

RESEARCH

- Risk factors for HTN
- Prevalence of HTN
- Suitable drug and drug combinations
- Preventive practices
- Management of complications

B. ISCHAEMIC HEART DISEASE (IHD)

[Also called: Coronary Heart Disease (CHD); Coronary Artery Disease (CAD)]

Definition

Ischaemic Heart Disease (IHD) is the result of a lack of supply of oxygen to the myocardium compared to the demands.



EPIDEMIOLOGY

Of an estimated 58 million deaths globally from all causes in 2005, cardiovascular disease (CVD) accounted for 30%. In Zambia, the problem of IHD is on the increase, and is fast becoming a leading cause of death and disability.

Risk Factors

Non-Modifiable Risk Factors

- Age
- Sex
- Family History
- Race

Modifiable Risk Factors

- Cigarette smoking
- Dietary Risk factors
- Fruits and vegetables
- Physical Inactivity
- Overweight
- Alcohol intake
- Psychosocial Factors
- Dyslipidaemia
- HTN
- DM
- Gout
- Drugs

Presentation

I. ANGINA PECTORIS

Diagnosis is largely based on history, classically retrosternal or central chest pain, radiating to the jaw or arms.

Types of angina

- Classical angina
- Unstable angina
- Variant angina



Clinical findings

Generally, there are no physical findings, though signs of underlying disease may be found

Investigations

- CXR
- ECG (resting and exercise ECG)
- ECHOCARDIOGRAPHY
- Coronary Angiography
- FBC
- RBS

TREATMENT

Manage underlying or co-existent conditions

- ASA 75 mg
- Glycerol trinitrate as a tablet or spray
- B-blockers (atenolol, metoprolol)
- Nitrates
- Calcium channel blockers (verapamil, diltiazem)

Angioplasty

- Percutaneous transluminal coronary angioplasty (PTCA)-this is the process whereby the coronary artery is dilated using an inflatable balloon.
- Percutaneous Coronary Intervention (PCI) with stenting

2. ACUTE CORONARY SYNDROMES

- a). ST-elevation myocardial infarction (STEMI)
- b). Non-ST-elevation myocardial infarction (NSTEMI)

Investigations

- ECG
- ECHOCARDIOGRAPHY
- CARDIAC ENZYMES
 - creatine kinase-MB
 - cardiac troponin (I, T and C)

TREATMENT

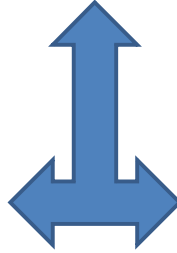
- Oxygen
- Diamorphine or morphine 2.5-5 mg
- Aspirin 150-300 mg chewable, then 75 mg
- Atenolol 50 mg
- Nitrates
- Clopidogrel 300mg loading dose, then 75 mg od
- Heparin 5000iu IV
- Low Molecular Weight Heparins (LMWH)
- ACE inhibitors
- Statins



ISCHEMIC HEART DISEASE

Coronary artery blood flow insufficiency due to coronary stenosis or vasospasm causing chest pain (angina) or in severe cases, a myocardial infarction.

ANGINA: clinical features – typical retrosternal chest pain on effort or at rest in a patient with risk factors (hypertension, smoking, diabetes type II, obesity, family history of similar condition, dyslipidemia, physical inactivity, elderly, male gender, postmenopausal women).



Follow up: Review monthly, each visit check BP, pulse, weight, educate on diet, life style, adherence to treatment. ECG and Echo, lipids and creatinine every 6 months.

Management at first presentation: to identify risk factors. 12 lead ECG, lipids, BS, ECHO. Treatment – Aspirin, Statins, Nitrates, B- blockers, glycemic control. Healthy diet and life style modification.



Prereferral management: as above under management at first presentation

Referral criteria:

1. Patients with high suspicion of IHD (risk factors, typical chest pain, abnormal ECG)
2. Diagnostic difficulties



LINK WITH THE SPECIALISTS:

Cell phone numbers of specialists
e-mail address
hospital fax
telemedicine
training

The prevention and control of IHD is addressed through three main strategies, which should be implemented by both Health professional and policy makers:

PRIMARY PREVENTION

Public Awareness

The Primary Prevention of IHD focuses on measures so that the pathological processes of IHD are either not initiated or else do not progress to develop into the disease.



There are two mainstays of this approach:

1. Educating & motivating the individuals and communities with a view to achieve positive life style behaviour changes, and,
2. Supplementing these IEC (Information, Education and Communication) efforts by suitable sociopolitical, legislative and administrative steps.

Primary preventive steps can be undertaken through two broad strategies, namely the “Population Approach” which focuses on large population groups, even the entire country, and the “Targeted Individual, High Risk Strategy” which focuses on individuals who have a high probability of developing IHD, due to the presence of certain risk factors.

Population Strategy

Mass Approach:

This strategy has a two pronged approach as follows:

1. Education and Motivation by various IEC techniques, with a view to informing the community / population and to secure a healthy lifestyle change. The key issues of IEC are summarized in
2. Socio-political, Administrative and Legal Actions to supplement the IEC steps, such as
 - Legislation and coercive steps against tobacco and alcohol;
 - Provision of Gymnasias, playgrounds and walkways;
 - Encouragement for produce of fruits and vegetables;
 - Subsidy on fruits and vegetables;

Targeted Group Approach

This strategy focuses on the educational and motivational efforts of certain selected groups of persons who, due to certain characteristics, are:

- At high risk of developing the coronary risk factors (e.g., “newly rich” persons, executives, bureaucrats, businessmen), or,
- Can be of help in implementing the preventive programmes (e.g., local leaders, policy makers, influential politicians and bureaucrats), or,
- Are in a “formative” stage and may develop healthy lifestyle if properly informed / motivated at this stage (e.g., school & college children).

Targeted High Risk Individual Strategy

Check the age, sex, family history of IHD, P and body weight of each adult patient, and educates/treats those who have a few of these risk factors.

SECONDARY PREVENTION

Early detection of IHD, at the incipient stage, through resting ECG, an exercise ECG, and Echocardiography.

TERTIARY PREVENTION

The patients need to be adequately treated and rehabilitated. The patient should be reassured and apprehensions allayed. Advice should be given regards long term drug therapy, physical exercise, reduction of risk profile and gradually getting back into day to day life activities. Follow up, assessment of status at periodic intervals and appropriate advice should be ensured.



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