

# HYPERTENSION: COMMON PATIENT PRESENTATIONS IN THE DEVELOPING WORLD

*Hypertension is common in the developing world as people move to urban areas and change their lifestyle.*

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South Africa is categorised as a developing country in terms of industrial development, per capita earning and level of literacy. A large number of people and neighbourhoods are disadvantaged due to poverty, lack of education and poor access to health care facilities. The rapid urbanisation due to the scrapping of pass laws in the mid-1980s, coupled with the political unrest of the mid-1970s to early 1990s, led to the development of numerous informal settlements around major cities in South Africa. Monitoring the health status and delivery of health care services to these communities poses a major challenge for the South African government. Similar conditions prevail in other developing countries.

Urbanisation has led to change in the lifestyle and habits of the South African population, which has resulted in an increase in the prevalence of lifestyle diseases such as hypertension. There is an increase in the consumption of alcohol and tobacco smoking, both of which are implicated in the cause and aggravation of hypertension. In 1998, 24% of South African adults used tobacco. In the same period, 28% of South Africans over the age of 15 years used alcohol. Traditional plant-based foods have been replaced by high-fat, high-sugar, energy-dense, low-fibre foods which lead to overweight, obesity and hypertension.

## SCREENING AND CASE FINDING

Hypertension is becoming a major health problem in the developing world. In Africa, hypertension affects about 20% of the adult population. The prevalence in South Africa is around 25% among the adult population, and it increases

with age. Although developed countries are expected to have a higher prevalence of hypertension because of their ageing populations, studies show an increasing and high prevalence rate in developing countries.

Many people with hypertension are asymptomatic and unaware of their illness. Most will be diagnosed during a consultation for some unrelated disorder, which means that case finding and screening may help to identify some of the hypertensive individuals. It is important to diagnose hypertension correctly using the correct measures of blood pressure. Wrongly labelling someone as hypertensive can only do harm – once someone has been diagnosed as hypertensive that person may no longer see him/herself as 'healthy'. A cohort of working men studied both before and after they were labelled hypertensive showed increased absenteeism, decreased psychological well-being and progressive loss of income in comparison with their workmates with normal blood pressure.

Before screening and case finding of hypertensive patients one should ask the questions listed in Table 1. This helps to convince patients of the value of their high blood pressure being diagnosed – it is important that patients realise that screening is done with the intention to treat. This is particularly important in hypertension because starting treatment may lead to potentially unpleasant side-effects. Educating the population about the disease will ensure that those who subject themselves to screening will be willing partners in the management of the illness.

Table 1. **Guidelines for deciding whether a screening or early diagnostic manoeuvre does more good than harm**

- Is there randomised control trial evidence that early diagnosis really leads to improved survival or quality of life, or both?
- Will the patients diagnosed early be willing partners in the treatment strategy?
- How do benefit and harm compare in different people and with different screening strategies?
- Does the frequency and severity of target disorders warrant the degree of effort and expenditure?

Because hypertension is a silent disease patients will present late, sometimes already with target-organ damage. Some patients may already have been seen by traditional medicine practitioners. Others might have defaulted from their previous treatment programme. The media is flooded with advertisements for alternative treatments that 'cure' all types of chronic diseases, including hypertension. This only helps to encourage patients to default on their treatment programmes.

The role of traditional healers cannot be ignored. There are an estimated 200 000 traditional practitioners in South Africa. Their large numbers and the proximity of their practices to the communities make them readily accessible. It appears that 80% of South Africans consult traditional healers before consulting biomedical practitioners. Traditional belief systems also play an important role in influencing help-seeking behaviour among people in the developing world.

### COMMON PRESENTATIONS

In the developing world it is not uncommon for patients to present for the first time with complications of hypertension. These are some common presentations:

#### Hypertensive crisis

Patients may present for the first time with a hypertensive crisis. The crisis may be an emergency or urgency.

Severe elevation of blood pressure (> 180/110 mmHg), complicated

by evidence of impending target-organ dysfunction, constitutes an emergency. These patients may present with hypertensive encephalopathy, intracerebral haemorrhage, myocardial infarction, acute left ventricular failure with pulmonary oedema, unstable angina pectoris, dissecting aneurysm or eclampsia.

Severe elevation of blood pressure without progressive target organ dysfunction constitutes hypertensive urgency. This may be associated with severe headache, shortness of breath, epistaxis or severe anxiety.

A patient with a hypertensive emergency should ideally be treated in an intensive care unit with parenteral administration of an appropriate agent. Patients with hypertensive urgency may be treated with two oral agents, e.g. an ACE inhibitor and a beta-blocker followed by several hours of observation, ideally in hospital.

#### Cerebrovascular events

Patients with undiagnosed hypertension may present for the first time with a stroke, which may be fatal or non-fatal. Survivors may report a severe headache of sudden onset, reaching maximum intensity within minutes. The headache may be accompanied by nausea and vomiting, and there may be a variable degree of loss of consciousness. Focal neurological signs will ensue, depending on the area of the brain that is affected. There may be signs of meningeal irritation and papilloedema.

Cerebrovascular events such as haemorrhagic stroke and ischaemic

stroke increase proportionally as a function of blood pressure levels. Most ischaemic strokes occur in patients with pre-hypertension or stage 1 hypertension as defined in the JNC7 criteria.

In a study by the MEDUNSA Stroke Data Bank among black South Africans it was found that the importance of hypertension and increasing age as risk factors for stroke is similar to that of Western populations. However, another study found that strokes of various aetiologies were more prevalent in rural South Africa than previously documented in Africa, but lower than in high-income countries.

Hypertensive encephalopathy has been mentioned earlier on. It is characterised by elevated blood pressure, accompanied by headaches, nausea, vomiting and altered levels of consciousness.

#### Dementia and cognitive impairment

This occurs more commonly in people with hypertension. Narrowing and sclerosis of small penetrating arteries in the subcortical regions of the brain are common findings at autopsy in chronic hypertension. These changes are believed to contribute to poor blood supply to the brain tissue and cognitive decline.

Reduced progression of cognitive impairment may occur with effective antihypertensive therapy. Dementia and cognitive impairment may result from previous stroke.

#### Chronic kidney disease

Hypertensive patients may present for the first time with end-stage renal disease. These patients may complain of weakness, fatigue, headaches, metallic taste in the mouth, hiccups, anorexia, nausea, vomiting, pruritus and nocturia. There is reduced kidney excretory function shown by declining glomerular filtration rate (GFR). There may be albuminuria > 300 mg per day or an albumin/creatinine ratio (ACR) of > 200 mg/g (determined on spot urine samples).

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In the 1994 statistics of the South African Dialysis and Transplant Registry, hypertension was identified as the cause of end-stage renal disease in 45.6% patients. The principal causes of chronic renal failure in tropical Africa and East Africa are chronic glomerulonephritis and hypertension. Renal disease on its own is more prevalent in Africa and seems to be of a more severe form than that found in Western countries. Glomerular disease appears to be the commonest form of nephropathy.

In developing countries 80% of the population uses traditional medicines which, like some pharmaceutical medicines, may cause kidney injury. Specific data on kidney toxicity and resultant hypertension from traditional medicines are not available.

*Callilepis laureola (Impila)* herbal medicine use is common among the African population of KwaZulu-Natal. This has been implicated in causing, among other things, renal dysfunction. It is unknown whether survivors of this poisoning will suffer from hypertension later on in life.

Polycystic kidney disease, tubular interstitial disease and diabetic nephropathy are other kidney diseases associated with hypertension.

### Heart failure

Hypertension precedes heart failure in approximately 90% of patients. Heart failure is a common first presentation of hypertension in the

developing world. Hypertension is an important cause of heart failure in people of African descent and in the elderly. Coronary artery disease is an emerging cause of heart failure in the developing world due to change in lifestyle and habits. In addition to hypertension, these patients are more likely to have left ventricular hypertrophy.

These patients commonly present with progressive shortness of breath, non-productive cough that may be aggravated by lying down, fatigue and poor exercise tolerance. This may progress to right heart failure, leading to right upper quadrant pain, loss of appetite, nausea and peripheral oedema.

The New York Heart Association (NYHA) classification and grading of heart failure may help in terms of grading disability and tailoring of individualised treatment. However, it is insufficient in terms of predicting treatment outcomes and is highly subjective.

### Diabetes and hypertension

The co-morbidity of diabetes mellitus and hypertension is increased in the general population. This also holds true for the developing world. Diabetics are disproportionately likely to develop hypertension and people with hypertension are 2.5 times more likely to develop diabetes within 5 years of diagnosis. Co-morbidity of hypertension and diabetes is linked to an increase in strokes, coronary vascular disease, renal disease and retinopathy. People who have hypertension and diabetes should be rigorously controlled to achieve target blood pressure levels lower than in the general population of hypertensives.

### Obstructive sleep apnoea

Obesity is increasing in the developing world and is common in people with obstructive sleep apnoea (OSA) – a reported 50% of people with OSA have hypertension. The causal association between OSA and hypertension involves the obesity-hypertension relationship and an independent role of OSA in chronic

blood pressure elevation. Episodes of apnoea with repeated low oxygen saturation in OSA have been shown to stimulate strong sympathetic nervous system activity that elevates the blood pressure directly. Sleep deprivation alone may raise the blood pressure.

These patients will complain of daytime somnolence, sluggishness, headaches, daytime fatigue, cognitive impairment and erectile dysfunction. Bedtime partners will usually report loud snoring, periodic breathing cessation, irregular breathing, restlessness and thrashing movements.

These patients are often obese, sometimes with a bull neck appearance, they may appear sleepy and may even fall asleep during examination.

### Urinary flow obstruction

When a normal urinary bladder is distended beyond approximately 300 ml, the sympathetic nervous system stimulation may cause a notable rise in blood pressure. Patients with high spinal cord injuries resulting in inability to pass urine voluntarily may exhibit large acute blood pressure increases, as in patients with autonomic dysfunction. High rates of trauma in the developing world have resulted in a substantial number of people with high spinal cord injuries. Keeping the bladder volume below 300 ml in these patients, together with the use of appropriate medication, will improve blood pressure control.

### Hypertension in pregnancy

Blood pressure assessment should form part of the routine examination and evaluation of all women before conception. This may not always be possible in developing countries because of difficulty in accessing health care. In addition, there are many reasons why pregnancies may be concealed or unplanned. Patients may present with pre-eclampsia (alone) or pre-eclampsia superimposed on chronic hypertension for the first time during pregnancy. Hypertensive diseases of pregnancy remain a leading cause of death among pregnant women in South Africa and



severe pre-eclampsia is the commonest cause of maternal and perinatal mortality and morbidity among the hypertensive diseases of pregnancy.

Pre-eclampsia is more common in nulliparous women, in women with a multiple pregnancy who also suffer from chronic hypertension, women with a family history of pre-eclampsia, women who have had hypertension in previous pregnancies and women with renal disease. The JNC7 has established a simple and easy-to-use classification of hypertension in pregnancy (Table II).

The reported incidence of pre-eclampsia among women with chronic hypertension is around 25%. Women with pre-eclampsia have a greater tendency to develop hypertension than those with normal blood pressure pregnancies.

Women with pre-eclampsia may complain of headache, visual disturbances, epigastric pain and swelling of the feet and ankles. Differentiation between mild and moderate pre-eclampsia is difficult because signs and symptoms that define the disease are variable. The signs and laboratory findings will depend on the degree of severity of the disease on the affected organs. The central nervous system, kidneys, liver, blood, blood vessels and the fetal placenta are mainly affected.

**Further reading**

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Table II. **Classification of hypertension in pregnancy**

Chronic hypertension	BP ≥ 140 mmHg systolic or 90 mmHg diastolic prior to pregnancy or before 20 weeks' gestation, persisting > 12 weeks postpartum
Pre-eclampsia	BP ≥ 140 mmHg systolic or 90 mmHg diastolic with proteinuria (> 300 mg/24 h) after 20 weeks' gestation Can progress to eclampsia (seizures) More common in nulliparous women, multiple gestation, women with hypertension for > 4 years, family history of pre-eclampsia, hypertension in previous pregnancy, renal disease
Chronic hypertension with superimposed pre-eclampsia	New-onset proteinuria after 20 weeks in a woman with hypertension In a woman with hypertension and proteinuria prior to 20 weeks' gestation Sudden 2 - 3-fold increase in proteinuria Sudden increase in blood pressure Thrombocytopenia Elevated AST or ALT
Gestational hypertension	Hypertension without proteinuria occurring after 20 weeks' gestation Temporary diagnosis May represent preproteinuria phase of pre-eclampsia or recurrence of chronic hypertension abated in midpregnancy May progress to pre-eclampsia If severe, may result in higher rates of premature delivery and growth retardation than with mild pre-eclampsia
Transient hypertension	Retrospective diagnosis BP normal by 12 weeks postpartum May recur in subsequent pregnancies Predictive of future primary hypertension

ALT = alanine aminotransferase; AST = aspartate aminotransaminase.

**IN A NUTSHELL**

Hypertension is an increasing problem in the developing world because of urbanisation and changes in lifestyle.

Screening and case finding is important in the detection of hypertension.

Patients in the developing world are likely to present with symptoms of end-organ damage.

Hypertensive crises may be urgencies or emergencies.

The prevalence of dementia and cognitive dysfunction is increased in hypertensive patients.

Some patients will present with symptoms indicative of chronic kidney disease.

In 90% of patients heart failure is preceded by hypertension.

There is a known concordance of diabetes and hypertension.

Obstructive sleep apnoea is an acknowledged cause of hypertension.

Urinary flow obstruction and pregnancy can aggravate or cause hypertension.