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Managing hypertension

Key messages from the latest South African Hypertension Guidelines

- The latest South African Hypertension Guidelines (2019) have reconfirmed the diagnostic definition of hypertension as ≥140/90mmHg, despite the American College of Cardiology/ American Heart Association (ACC/AHA) lowering the limits of defined hypertension in 2018. The European Society of Cardiology (ESC) also defines hypertension at the same level as the South African guidance
- Risk stratification and the presence of target organ damage are key factors in determining the treatment strategy for an individual with hypertension
- The South African Hypertension Society (SAHS) advocates increased use of single-pill, fixed-medication combinations that will improve patient adherence and ensure that desired targets are reached early
- Clinicians in South Africa need to be advocates for better treatment options for hypertension in both the private and public health sectors - this will help to replicate the success of the HIV treatment campaign and provide effective hypertension treatment, thereby saving lives and reducing the occurrence of major adverse cardiovascular events such as stroke.

Introduction

Hypertension is currently the major preventable cause of death among black African communities. South Africa has the highest prevalence of hypertension of any African country (42-54%), according to a recent cross-sectional epidemiological study of sub-Saharan African countries.[1] Analysis of the 2011-2012 South African National Health and Nutrition Examination Study (SANHNES) revealed an age-adjusted hypertension prevalence of 35% in those aged 15 years and older.[2]

In South Africa, more than 90% of hypertensive patients have poor blood pressure (BP) control because of lack of awareness, failure to access treatment, the presence of undiagnosed hypertension, its being left untreated if diagnosed, or if treated, not controlled (Figure 1).[1]

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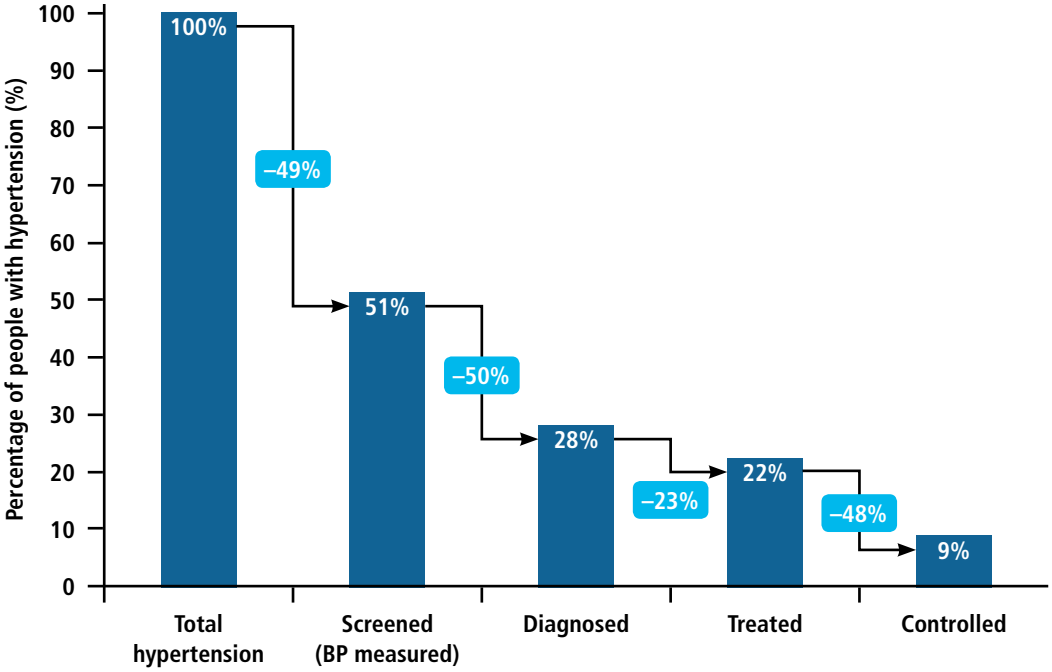

Figure 1. The hypertension care cascade, South Africa 2011-2012[2]

How is hypertension defined by South African guidelines?

Reviewing the recent recommendations of the ACC/AHA,[3] the SAHS[4] has decided to retain the threshold for hypertension at ≥140/90mmHg, with that as a universal treatment target for all categories of hypertension. The SAHS definition and categorisation is summarised in Table 1.[4]

Table 1. SAHS definition of hypertension

BP category*	Systolic BP		Diastolic BP
Normal	<120	And	<80
Optimal	120-129	And	<80
High normal	130-139	Or	80-90
Hypertension			
Grade 1	140-159	Or	90-99
Grade 2	160-179	Or	100-109
Grade 3	≥180	Or	≥110
Isolated systolic	≥140	And	<90

**Individuals with systolic BP in two categories should be assigned to the higher BP category based on two or more careful readings obtained on two or more occasions*

How to achieve recommended BP targets in individual patients?

The universal BP target in South Africa is <140/90mmHg, except in elderly patients (>80 years), in whom a target of between 140-150/90mmHg has been shown to achieve the desired benefit, particularly with regard to stroke reduction.[5]

The clinical assessment of risk determines whether lifestyle advice or immediate pharmacological therapy, either monotherapy or a combination of antihypertensive medications, should be introduced. In patients with hypertension without any risk factors, target organ disease or other complications, lifestyle advice is the recommended first course of therapy. Desired lifestyle changes should include increased physical activity, diet and weight reduction to a BMI <25kg/m^2 if possible (Figure 2).

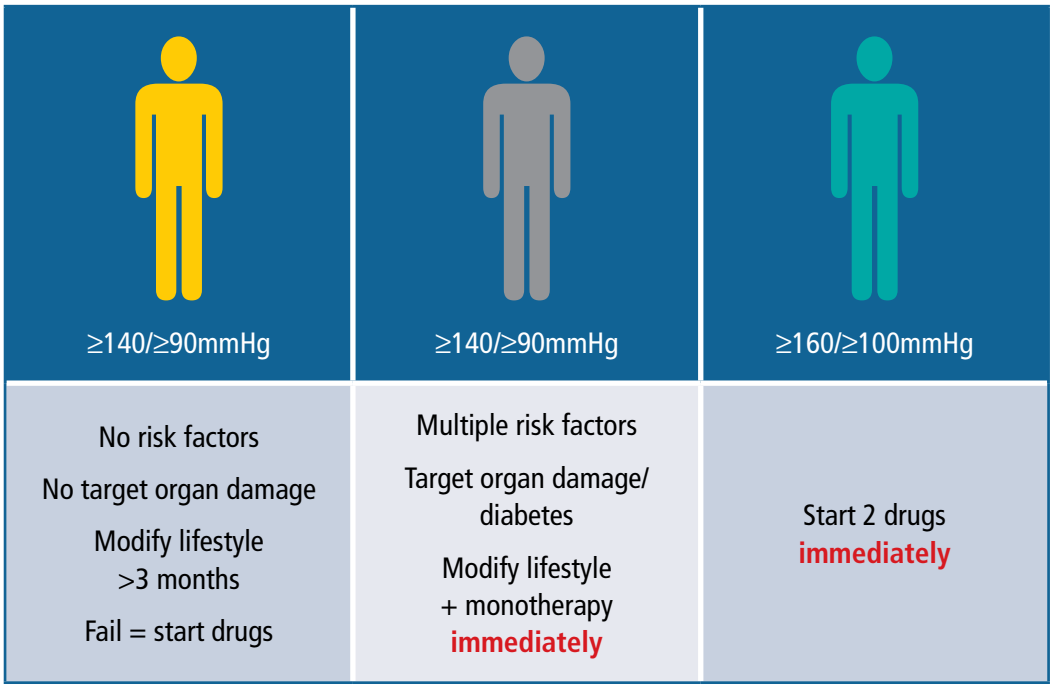

Figure 2. Stratifying cardiovascular risk

It is vital to ensure that patients receive effective antihypertensive therapy, whether it is a diuretic, an angiotensin-converting enzyme inhibitor (ACE-I), an angiotensin receptor blocker (ARB) or a calcium channel blocker (CCB). Initial therapy and dosages should be revised within 4-6 weeks.

Special considerations

Combination therapy

The SAHS advocates increased use of combination therapy, not only when initial BP is >160/90mmHg, but also when (by extrapolation) the desired reduction to be achieved is in the region of 20mmHg systolic or 10mmHg diastolic.

Combination single-pill therapy of a thiazide-like diuretic with either an ACE-I/ARB or a CCB has been shown to improve patient adherence, particularly as hypertensive patients are also frequently being treated for dyslipidaemia, diabetes or other comorbidities.

Selection of antihypertensive medications

The indications and contraindications for the major classes of antihypertensive are supplied in Table 2, as published in the most recent SAHS guidelines.

Table 2. Indications and contraindications for the major classes of antihypertensive drugs
Adapted from the ESC/ESH guidelines[6,7]

Class	Conditions favouring the use	Contraindications	
		Compelling	Possible
Diuretics (thiazide; thiazide-like)	• Heart failure (HF) • Elderly hypertensives • Isolated systolic HTN (ISH) • Hypertensives of African origin	• Gout	• Pregnancy • β-blockers (especially atenolol)
Diuretics (loop)	• Renal insufficiency • HF		• Pregnancy
Diuretics (anti-aldosterone)	• HF • Post-myocardial infarction • Resistant hypertension	• Renal failure • Hyperkalaemia	
Calcium Channel Blockers (CCB) (dihydropyridine)	• Elderly patients • ISH • Angina pectoris • Peripheral vascular disease • Carotid atherosclerosis • Pregnancy		• Tachyarrhythmias • HF especially with reduced ejection fraction
CCB non-dihydropyridine (verapamil, diltiazem)	• Angina pectoris • Carotid atherosclerosis • Supraventricular tachycardia	• AV block (grade 2 or 3) • HF	• Constipation (verapamil)
ACE-Inhibitors (ACE-I)	• HF • LV dysfunction • Post-myocardial infarction • Non-diabetic nephropathy • Type 1 diabetic nephropathy • Prevention of diabetic microalbuminuria • Proteinuria	• Pregnancy • Hyperkalaemia • Bilateral renal artery stenosis • Angioneurotic oedema (more common in blacks than in Caucasians)	
Angiotensin Receptor Blockers (ARB)	• Type 2 diabetic nephropathy • Type 2 diabetic microalbuminuria • Proteinuria • LVH • ACE-I cough or intolerance	• Pregnancy • Hyperkalaemia • Bilateral renal artery stenosis	

Black and Asian patients with hypertension[7]

Black patients are more prone to complications such as stroke, heart failure and renal failure, while the incidence of coronary heart disease, although increasing in frequency, is less common compared to Caucasians and Asians.[8] The prevalence of diabetes mellitus and the metabolic syndrome is higher in Asians compared to other racial groups.[9] Compared to Caucasians, blacks respond poorly to ACE-Is and β-blockers as monotherapy, but this difference disappears once these medications are combined with diuretics. Overall, CCBs show the most consistent response in black hypertensives, compared to other classes of drugs used as monotherapy.[10,11] However there is a higher incidence of angioedema in blacks treated with an ACE-I.[12]

The recently published CREOLE study has also shown that in black patients in sub-Saharan Africa, amlodipine plus either hydrochlorothiazide or perindopril was more effective than perindopril plus hydrochlorothiazide at lowering BP at six months.[13]

Hypertension in adolescents[14,15]

Hypertension in adolescents is increasingly linked to obesity and affects up to 10% of people between the ages of 15 and 25 years.[16] The international trend of poor diet and lack of exercise in children is leading to an epidemic of obesity, with resultant early onset of hypertension and even type 2 diabetes. The early recognition of hypertension in these adolescents will be an important motivation for both children and parents to institute essential lifestyle changes.

Combination single-pill therapy of a thiazide-like diuretic with either an ACE-I/ARB or a CCB has been shown to improve patient adherence, particularly as hypertensive patients are also frequently being treated for dyslipidaemia, diabetes or other comorbidities

HIV/AIDS

There are an estimated 5.8 million people living with HIV in South Africa. The co-existence of HIV with hypertension and diabetes is increasing, and patients should be screened for associated glomerulonephritis.[17] Prolonged highly active antiretroviral therapy (HAART) is associated with a higher prevalence of systolic hypertension,[18] and it is essential that BP be monitored in patients receiving HAART. Two of the three major classes of antiretroviral drug, the protease inhibitors and the non-nucleoside reverse transcriptase inhibitors, are involved in many drug interactions as a consequence of their inhibiting or inducing the key hepatic enzyme system, cytochrome P450. CCBs are the major class of antihypertensive affected by such drug interactions, leading to inhibition or induction of their metabolism.[19,20] This results in either an enhancement or loss of antihypertensive efficacy. HIV-positive adults treated with nevirapine, zidovudine or stavudine have a higher risk of developing hypertension compared to patients initiated on efavirenz.[21]

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