

## GUEST EDITORIAL

# Cardiovascular medicine in primary healthcare in sub-Saharan Africa: Minimum standards for practice (part 1)



Cardiovascular disease (CVD) accounts for approximately 30% of deaths worldwide, with 80% of this CVD burden occurring in developing countries.<sup>[1]</sup> The epidemiological transition occurring in sub-Saharan Africa (SSA) has the consequence of economic and

social transformation, resulting in dramatic shifts in the disease spectrum from communicable diseases and malnutrition to CVD and cancer.<sup>[2]</sup>

South Africa (SA) is faced with the challenge of four colliding epidemics: (i) poor child and maternal health; (ii) high rates of interpersonal violence; (iii) infectious diseases including HIV/AIDS and tuberculosis; and (iv) non-communicable diseases (NCDs) including CVD. In SA NCDs are prevalent in both rural and urban areas, most prominently in poor persons living in urban and peri-urban settings, resulting in increasing pressure on acute and chronic healthcare services.<sup>[3]</sup>

A major driver of this NCD burden in SA is the demographic change in the country leading to an increase in the proportion of people older than 60 years, despite the negative effect of HIV/AIDS on life expectancy. Contributions to the CVD burden in the country include hypertension, cardiomyopathies, rheumatic valvular heart disease, pericardial disease and coronary artery disease, among others.<sup>[4]</sup>

In this issue of the journal the clinical approaches to these common cardiovascular problems are reviewed, with the dual objective of empowering doctors who manage these conditions in primary care settings around SA as well as improving the care of CVD in primary care settings and emergency departments. This series of articles represents the collaborative efforts of primary health/family physicians and cardiologists from around the country, who have synthesised and presented the most current, evidence-based and practical approaches to manage common CVDs. In this edition, the important topics of heart failure (HF), dyspnoea, hypertension in the young, and valvular heart disease are reviewed. The following issue will focus on infective endocarditis, pericardial disease, acute coronary syndromes, and chest pain and suspected tachyarrhythmias in the emergency room.

HF in SSA is a prevalent problem that presents varying challenges in resource-constrained countries, and remains one of the most common primary diagnoses for patients on the continent admitted to hospital with heart disease. Kraus *et al.*<sup>[5]</sup> review the epidemiology of HF in SSA and the principles of management, focusing on symptom relief, prevention of hospitalisation and improving survival.

There have been no population-based epidemiological studies on HF in Africa, but there have been a number of important hospital-based studies. The article reviews the classification, aetiology, pathophysiology and clinical presentation of HF, which represents the final common expression of many cardiovascular disorders. While the diagnosis of HF is a clinical one, the electrocardiogram (ECG) and echocardiogram remain the most useful investigations.

The authors emphasise the importance of patient education and optimisation of medical therapy, especially disease-modifying drugs such as angiotensin-converting enzyme inhibitors, beta-blockers and those that relieve symptoms and keep patients out of hospital, such as digoxin and diuretics. Effective diuresis and complete resolution of congestion are key in improving symptoms and functionality of patients with HF, along with optimal doses of disease-modifying drugs.

The article by Coccia *et al.*<sup>[6]</sup> on dyspnoea reviews the pathophysiology and management of breathlessness, a complex symptom resulting from cardiovascular, respiratory or other system compromise. Almost 90% of cases are due to common and easily manageable conditions.

Specifically in SA, with the high burden of HIV infections and high prevalence of interpersonal violence, many patients present with dyspnoea due to either opportunistic infections related to HIV infection or trauma related to violence. A detailed history and careful assessment are imperative, looking for specific red flags that suggest a life-threatening cause such as hypotension, altered mental status and high respiratory rate. The chest radiograph is a useful tool, but has low sensitivity in diagnosis of some of the causes. The utility of other investigations, such as the ECG, cardiopulmonary exercise testing and echocardiography, is concisely discussed.

Management of dyspnoea should focus primarily on treating the underlying disease and relieving symptoms, supported by the use of oxygen where indicated, pharmacological therapy and pulmonary rehabilitation. Although supplemental oxygen improves mortality in chronically hypoxaemic patients with chronic obstructive pulmonary disease, there are conflicting data about its ability to relieve breathlessness. As supplemental oxygen is an expensive form of therapy, the lack of evidence-based data for this intervention should discourage its use. Opioids have been the most widely studied agent in the treatment of dyspnoea. Short-term administration reduces breathlessness in patients with a variety of conditions. Pulmonary rehabilitation is an integral component of the management of patients with chronic lung disease, and results in decreased ventilatory requirements and respiratory rate during ambulation, thereby decreasing the risk of developing dynamic hyperinflation.

Hypertension in the young patient is an important challenge for many primary healthcare clinicians. Mangena *et al.*<sup>[7]</sup> review hypertension in patients under the age of 40 years. In SA one-third of the population (approximately 17 million persons) are hypertensive and in adolescents and young adults (15 - 24 years) the incidence of hypertension is 10%. The aetiological profile remains the same as in the adult population, where 90% of cases are due to primary hypertension and the remaining 10% are secondary to renal parenchymal and renovascular disease, primary aldosteronism, medications such as oral contraceptives, cocaine or amphetamines, and rare causes such as coarctation of the aorta.

The management approach is opportunistic screening for raised blood pressure, pharmacotherapy, and alcohol and illicit drug cessation. Non-pharmacological approaches to lowering blood pressure include weight loss, exercise and avoidance of junk food. The SA hypertension guidelines<sup>[8]</sup> have recently been updated, and provide comprehensive guidance on management. Referral of all young hypertensives for specialist evaluation is recommended.

Cupido *et al.*<sup>[9]</sup> review the diagnosis and management of valvular heart disease (VHD), a common but difficult problem in everyday clinical practice. Rheumatic heart disease, a sequela of streptococcal throat infection, remains a common cause of VHD in SA, and often has devastating complications in the young. The causes, clinical presentation, and ECG and chest radiographic features of the common valve lesions are described. Patients with symptomatic valve

lesions should be referred for cardiologist assessment. In most cases, medical therapy serves as a bridge to definitive mechanical or surgical therapy.

Echocardiography with colour flow and Doppler (not focus-assessed transthoracic echocardiography (FATE) scans) plays a pivotal role in confirming the diagnosis and assessing the severity of the valve lesions and concomitant pulmonary hypertension, other valve lesions and haemodynamic consequences. Invasive testing with cardiac catheterisation is reserved for patients in whom there is a discrepancy between clinical findings and echocardiography.

Prosthetic valves are also discussed, including properties of the different types, and the role and management of anticoagulation in patients with VHD. Warfarin is the anticoagulant of choice in patients with metallic prosthetic valves, aiming for an international normalised ratio of 2.5 - 3.5. Antiplatelet agents such as aspirin do not provide adequate protection and are not recommended without the use of anticoagulants.

It is our sincere hope that this series of articles on common cardiovascular conditions often encountered in primary care settings in SA and SSA will improve the care of patients with CVD. Furthermore, it is our wish that these articles clearly emphasise the minimum standards for management of these common cardiovascular disorders.

### **Gboyega Ogunbanjo**

*Guest editor*

*Department of Family Medicine and  
Primary Health Care,  
Sefako Makgatho Health Sciences University,  
Pretoria, South Africa  
profbanjo@gmail.com*



### **Ntobeko A B Ntusi**

*Guest editor*

*Division of Cardiology,  
Department of Medicine,  
Faculty of Health Sciences,  
University of Cape Town and  
Groote Schuur Hospital,  
Cape Town, South Africa  
ntobeko.ntusi@gmail.com*



1. Mathers CD, Fat DM, Inoue M, Rao C, Lopez AD. Counting the dead and what they died from: An assessment of the global status of cause of death data. *Bull World Health Organ* 2005;83:171-177.
2. Gaziano TA. Cardiovascular disease in the developing world and its cost-effective management. *Circulation* 2005;112:3547-3553. [<http://dx.doi.org/10.1161/CIRCULATIONAHA.105.591792>]
3. Mayosi BM, Flisher AJ, Lalloo UG, Sitas F, Tollman SM, Bradshaw D. The burden of non-communicable diseases in South Africa. *Lancet* 2009;374:934-947. [[http://dx.doi.org/10.1016/S0140-6736\(09\)61087-4](http://dx.doi.org/10.1016/S0140-6736(09)61087-4)]
4. Ntusi NAB, Mayosi BM. Epidemiology of heart failure in sub-Saharan Africa. *Expert Rev Cardiovasc Ther* 2009;7:169-180. [<http://dx.doi.org/10.1586/14779072.7.2.169>]
5. Kraus S, Ogunbanjo G, Sliwa K, Ntusi NAB. Heart failure in sub-Saharan Africa: A clinical approach. *S Afr Med J* 2016;106(1):23-31. [<http://dx.doi.org/10.7196/SAMJ.2016.v106i1.10325>]
6. Coccia CBI, Palkowski GH, Schweitzer B, Motsohi T, Ntusi NAB. Dyspnoea: Pathophysiology and a clinical approach. *S Afr Med J* 2016;106(1):32-36. [<http://dx.doi.org/10.7196/SAMJ.2016.v106i1.10324>]
7. Mangena P, Saban S, Hlabyago KE, Rayner B. An approach to the young hypertensive patient. *S Afr Med J* 2016;106(1):36-38. [<http://dx.doi.org/10.7196/SAMJ.2016.v106i1.10329>]
8. Hypertension guideline working group: Seedat YK, Rayner BL, Veriava Y. South African hypertension practice guideline 2014. *Cardiovasc J Afr* 2014;25:288-294. [<http://dx.doi.org/10.5830/CVJA-2014-062>]
9. Cupido BJ, Peters F, Ntusi NAB. An approach to the diagnosis and management of valvular heart disease. *S Afr Med J* 2016;106(1):39-42. [<http://dx.doi.org/10.7196/SAMJ.2016.v106i1.10326>]

*S Afr Med J* 2016;106(1):21-22. DOI:10.7196/SAMJ.2016.v106i1.10372