

Cardiovascular imaging in South Africa: Is the heartache easing?

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There is an escalation in the prevalence of cardiovascular disease in sub-Saharan Africa. The radiology community of South Africa plays an important role in curbing this epidemic. Cardiovascular magnetic resonance is now regarded as a very important tool in our diagnostic armamentarium, and in this issue some of the established applications, as well as exciting new developments, are discussed.

According to Albert Einstein, the world is a dangerous place to live; not because of the people who are evil, but because of the people who don't do anything about it.

The world is experiencing a steady rise in deaths due to cardiovascular disease (CVD). In a recent paper published by Roth et al., in the *New England Journal of Medicine*, data from the Global Burden of Disease Study 2013 were analysed, and it was concluded there was a rise of 41% in the incidence of CVD between 1990 and 2013.¹

The factors underlying the global epidemic are population growth, an aging society and particularly in the developing world an explosion of risk factors: a striking example of the epidemiologic transition.^{1,2}

Eighty percent of deaths due to CVD occur in developing countries.³ Although the epidemic is already rampant in many parts of the world, for example South East Asia, Eastern Europe and the Gulf states, sub-Saharan Africa is particularly vulnerable due to the multitude of challenges.

Hypertension, urbanisation, a rise in diabetes mellitus, obesity, smoking, physical inactivity and the growing number of long-term survivors with HIV and/or AIDS contribute heavily to an epidemic that is imminent and may have already become established in some population groups in Africa.⁴

Despite a steady decline in the rate of infection worldwide, the HIV and/or AIDS infection rate in sub-Saharan Africa remains high. There is a substantially increased risk of CVD in HIV-infected patients (both in treated and untreated patients).^{5,6}

In the diagnosis and management of CVD, sophisticated imaging is playing an increasing and, in some situations, indispensable role. With the advance of technology has come an increased use of imaging procedures to screen for covert but potentially life-threatening CVD. The value of imaging is, for the first time, now the focus of randomised trials.⁷

Cardiac imaging, historically, has always been the underdog amongst our imaging armamentarium in South Africa, but during the past few years we have seen a welcome change.

A concerted effort from the Radiological Society of South Africa (RSSA) has resulted in workshops and meetings conducted by world experts on Computerized Coronary Arteriography (CCTA), as well as the recent first Cardiovascular Magnetic Resonance Conference (CMR) locally.

Industry also participated in an effort to decrease the amount of negative conventional angiograms and to streamline and direct the correct referrals to non-invasive alternative imaging. This resulted in productive discussions between the cardiology and radiology communities and laid a foundation for better communication in the future.

The South African Cardiac Imaging Society (SASOCI), a sub-committee of RSSA, was founded in 2015 and the first webinar series on CMR was recently held under their supervision.

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This special *South African Journal of Radiology* Cardiac Magnetic Resonance issue underscores the welcome interest that now exists amongst radiologists and academic institutions to actively promote cardiac imaging in South Africa.

Post-processing forms an important part of CMR and is aptly addressed here and so are pericardial and valvular diseases, which remain the most common cardiovascular afflictions locally.

Tissue characterisation is probably the most exciting and unique aspect of CMR. Mapping techniques will enable us in future not only to differentiate between different forms of pathology, but also to quantify the degree of myocardial involvement. Hypertrophic and Infiltrative cardiomyopathies are good examples where CMR is playing an increasing role.

Unfortunately, in spite of our substantial efforts we still face huge challenges in South Africa:

The general population does not have access to sophisticated high-end imaging, especially in rural areas.

South Africa has a serious shortage of health-care workers and a lack of sufficient CMR and CCTA experience amongst local radiologists.

Infectious diseases, which include HIV, tuberculosis and malaria, receive priority amongst policymakers. The lack of cause-specific mortality data probably adds to the perceived inertia amongst the policymakers to address the threat more proactively.

Radiology can play an important role in the diagnosis of CVD. We need to train more radiologists and we need to keep them here. We also need to continue with our efforts to expand local expertise, especially regarding CT and CMR,

and we need to participate with the clinicians in the documentation of cardiac abnormalities.

More diagnostic facilities need to be installed in the rural areas (e.g. mobile chest X-ray and echocardiography equipment), which will go a long way to screen patients with cardiac abnormalities. They can then be referred to specialised centres for more sophisticated clinical and diagnostic imaging assessment.

The Egyptian writer Maquib Mahfouz who won the Nobel Prize for Literature in 1988 said, 'You can tell whether a man is clever by his answers. You can tell whether a man is wise by his questions.' Policymakers often demand answers and surround themselves with experts who supply them with the requested solutions. More than often these solutions fail to address the root of the matter. Opposed to the uncritical consumption of the information market, we are challenged to question the comfortable and the traditional. Paraphrasing Einstein and Mahfouz: we need wise men, not clever men, to care for mankind and to guide world events.

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