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## Heart disease in Soweto: facing a triple threat

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Soweto, an acronym for southwestern townships, was the name given in 1963 to the sprawling agglomeration of townships that had grown up adjacent to Johannesburg to accommodate black people migrating from rural areas and surrounding countries. As in other parts of Africa, Soweto residents face the triple cardiac threat that occurs with epidemiological transition: first from infectious diseases, second from coronary heart disease, and third from HIV/AIDS with re-emergence of

tuberculosis. All three contribute to an increase in the incidence of cardiomyopathy and heart failure. Rapid transition is expected with the burden of cardiovascular disease increasing by more than 150% over the next 20 years<sup>1</sup> and that of HIV/AIDS doubling by 2010.<sup>2</sup>

In today's *Lancet*, Karen Sliwa and colleagues<sup>3</sup> report data from a registry of 4162 patients who presented to Baragwanath Hospital in Soweto in 2006, many (31%) of whom had advanced heart failure. The late presentation is probably due to a lack of education, poor quality of and access to primary care, and delays for patients who first consulted traditional healers (who have recently obtained full health-professional status).<sup>4</sup> Many patients only present to a hospital after traditional medicine has proved ineffective.

There have been previous warning signs of epidemiological transition from infection to coronary heart disease in other parts of Africa,<sup>5</sup> but the expected rapid transition to an epidemic of coronary heart disease<sup>6</sup> has not yet happened in black people in Soweto, despite high rates of risk factors and slowly increasing education and income.

The new study<sup>3</sup> included only symptomatic patients seeking medical help, and did not include those reluctant to seek help, those tolerating their symptoms, or those treated by traditional healers. The registry cannot provide data on sudden cardiac death. And there is little discussion of renal disease, waist-to-hip ratios were not

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Patient with tuberculosis in Baragwanath Hospital, Soweto township

measured, and exercise, stress levels, and socioeconomic status were not assessed.

Also, the registry underestimates the effect of HIV/AIDS because screening without consent was not allowed. The 5% seropositivity<sup>3</sup> was lower than that in the general population of Soweto, which is probably closer to 15%. Soweto is probably also experiencing the major rise in the incidence of tuberculous pericarditis and the advent of HIV-associated cardiomyopathy and myocardial infarction related to antiretroviral therapy that is happening in other parts of Africa.<sup>7</sup>

Sliwa and colleagues' results are relevant to many areas of the world that face similar threats and the emergence of epidemics of heart disease. In some developing countries, such as India, the epidemiological transition has been more rapid<sup>8</sup> and the speed of transition will vary from country to country depending on the exposure time and competing causes.<sup>9</sup>

How might the triple threat be blunted? In Soweto, 87% of people have one or more risk factors for coronary heart disease,<sup>3</sup> highlighting the need for dedicated primary prevention programmes. Lifestyle modification, early identification, and cost-effective treatment of risk factors are very important. Many black people in urban South Africa have hypertension related to high salt intake, have adopted diets similar to those in western Europe and North America, and have changed to a sedentary lifestyle. South Africa had, however, banned smoking in public places including restaurants since the mid-1990s, before similar European legislation.

Focusing solely on prevention of coronary heart disease ignores other components of the triple threat. Control of rheumatic fever depends on primary prophylaxis with better housing, less overcrowding, improved access to health services, and prevention of recurrent infection with penicillin prophylaxis.<sup>10</sup> Simple echocardiography could contribute to early detection of rheumatic heart disease<sup>11</sup> and institution of appropriate secondary prevention.

Dilated cardiomyopathy is endemic in Africa<sup>12</sup> with several causes, including infection, alcohol consumption, nutritional deficiency, and peripartum cardiomyopathy. The commonest cause is idiopathic, some of which might be due to burnt-out untreated hypertension (in which, after heart failure, blood pressure falls to normal, thus hindering diagnosis). The late presentation of patients in advanced stages of heart failure stresses the need for a strong focus on early detection.

Prevention and treatment of HIV/AIDS require increased resources. The South African media have suggested that HIV/AIDS is underplayed by the government because of concerns about cost, some politicians' belief in traditional healing and alternative medicine, and social stigma.

The major challenge is how to increase health resources. A recurring theme in Africa is the absence of reliable statistics. This registry,<sup>3</sup> from one of the largest urban populations of black Africans, goes a long way towards correcting that deficit in Soweto. The ongoing study will provide important insights into the prevalence of heart disease, which is the first step to the mitigation of the modern global epidemic of cardiovascular disease.<sup>13</sup> Future reports will document the speed of epidemiological transition. Improvements in morbidity and mortality will hopefully happen through the institution of preventive strategies and systems of care suggested by this important work.<sup>3</sup>

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