ISSUES IN MEDICINE

Valvular heart disease in South Africa in 2005

P J Commerford

There are no good statistics available with regard to the prevalence, treatment patterns and results of treatment of valvular heart disease in South Africa. However, most practitioners with experience in the area agree that valvular heart disease remains common and is not managed well. The reasons why patients with valvular heart disease are not recognised and treated appropriately are complex. Blame can be apportioned to many aspects of the system of medical care available to such patients, and as much as I am a part of that system I must acknowledge a degree of responsibility for any deficiencies. It is worth examining and discussing the previous and current situation so that we can devise strategies to improve the care we provide in the future.

Before the mid-1980s South African clinician scientists made significant contributions to knowledge in the area of valvular heart disease. The mitral valve prolapse syndrome and features of sub-mitral aneurysm were first described in South Africa. Large observational studies described management of patients with a variety of manifestations of valvular heart disease, which were mainly rheumatic in aetiology. Reports of the beneficial effects of successful mitral valve repair or valvotomy, valve replacement surgery in acute rheumatic

Patrick Commerford is Professor of Cardiology in the Department of Medicine, University of Cape Town, and head of the Cardiac Clinic at Groote Schuur Hospital.

Corresponding author: *P J Commerford (pjcomfrd@uctgsh1.uct.ac.za)*

carditis and infective endocarditis altered practice. Percutaneous balloon valvuloplasty was demonstrated to be safe and effective in pregnancy and superior to surgical relief of obstruction. Beta-blockers were demonstrated to be effective and safe in mitral stenosis. Significant new information regarding ventricular function in patients with valvular regurgitation was published.

There has been little published information on the prevalence of valvular heart disease or optimal management of such patients in South Africa since the mid-1980s. We have to enquire why this is so. The World Health Organization (WHO) report of 2001[1] indicates that rheumatic heart disease remains common in Africa and is responsible for significant premature death and disability compared with the situation in the developed world. There is no reason to suggest that the situation is any different in South Africa, and this is congruent with clinical opinion and experience. In the only good local survey of which I am aware, conducted in Soweto in the 1970s,[2] a team of clinicians evaluated a representative sample of 12 050 black schoolchildren and three observers in agreement concluded that the prevalence rate of rheumatic heart disease was 6.9/1 000.[2] This is in the same range as is currently reported in other areas in Africa.[1]

It is well recognised that symptomatic disease may only manifest decades afterwards and therefore if the observations of the Soweto researchers are correct, there are now tens of thousands of patients with chronic rheumatic valvular heart disease in this country. The experience of those treating patients in the vulnerable population groups suggests that these observations are correct. Valve replacement surgery or repair offers symptomatic benefit and may sometimes improve prognosis. Why is it then that valve surgery has become less common in South Africa? I will argue that five factors (some of which are interrelated) impact negatively on patient care. These are the privatisation of health care, altered state resource allocation, inappropriate priority given to patients with coronary disease, our professional educational system and the impact of the HIV epidemic.

Privatisation of health care

We have celebrated the 10th anniversary of democracy in our country which offers equality for all, but the fact is that for patients with valvular heart disease we remain a nation divided by the costs of health care. Care of patients with valvular heart disease is expensive. Affluent patients, or those with medical aid (20% of the population), have access in the private sector to the very best medical care available. Valve disease in this patient group is uncommon and is usually degenerative, affecting primarily older patients. As in most of the developed world, coronary disease is the major problem, and valve disease in young patients is uncommon. The impact of the HIV epidemic has not yet manifested in these patients.

In stark contrast, those patients (80% of the population) who are not affluent and who do not have access to medical aid or are indigent rely on the state for their medical care. Most such patients are young and have rheumatic or other infective disease as the cause of their heart disease. HIV infection is common in these patients and inevitably influences the care they receive.

In common with virtually all categories of health care workers the majority (more than 70%) of registered cardiac surgeons, cardiologists and cardiac clinical technologists in South Africa work in the private sector.

The personnel resources required to diagnose and effectively treat young patients with valvular heart disease in the population dependent on the state are severely depleted.

Altered state resource allocation

Definitive surgical treatment of patients with valvular heart disease is a tertiary care function. National health policy currently emphasises primary and secondary care and the budgetary changes consequent on that emphasis mean that over the last 5 years budgets of some tertiary care hospitals have diminished (they have certainly not increased in pace with inflation). It is to be hoped that in decades to come expanded primary care services in combination with improved socio-economic conditions will result in less rheumatic valvular heart disease. However, the short-term effect of the current policy is that patients with established valve disease, in need of surgical repair, are seriously disadvantaged. Cardiac valve surgery is expensive. Individual high-cost items such as valve prostheses or other 'disposables' are convenient targets for financial managers when setting 'quotas'. In contrast, coronary artery surgery, particularly off-pump surgery, is cheaper. Patients with coronary disease displace those with valve disease on waiting lists unless the managers of such lists are extraordinarily vigilant.

The net result of privatisation and altered resource allocation is that fewer and fewer patients with valvular heart disease are being operated on in state hospitals. The total number of cardiac operations at my own hospital has declined and the number of patients having valve surgery is half what it was some years ago. Fewer elective procedures are performed and emergency procedures on sicker patients take precedence. Similar trends are reported from other centres. The maintenance of competence and training of the next generation of cardiac surgeons require exposure to adequate numbers of procedures. There are already concerns that registrars do not get adequate experience in valve surgery; certainly they receive much less than a decade ago. A generation of cardiac surgeons and cardiologists is being trained with inadequate exposure to the most common cardiac condition in the majority of the population of the country.

This is particularly unfortunate as it is occurring just when we are finally moving towards enrolling a group of trainees and junior staff representative of the population we serve. What a tragedy it would be if we end up training them for practice in Europe or North America rather than in Africa simply because the stringencies of our health care system dictate this.

Inappropriate priority given to patients with coronary disease

The cardiac and cardiac surgical literature is written by and for a First-World audience where chronic rheumatic valve disease has been all but eradicated. The diagnosis and management of degenerative vascular, particularly coronary vascular, disease is the predominant topic. Not unexpectedly, this influences our practice to a large extent. Medical staff, nurses and paramedical teams understand the urgency of administration of thrombolysis after ST-elevation myocardial infarction, risk stratification after non ST-elevation myocardial infarction and the value of coronary surgery in prolonging life in certain subsets of patients. Such patients are usually referred promptly and urgently to specialist centres. Sometimes it seems that this is at the cost of patients with valve disease, who are only referred late in the course of the illness after years of treatment with diuretics and unpleasant symptoms and at a stage when surgery may no longer be feasible or carries a high risk.

The emphasis in professional education

Inevitably professional education, both under- and postgraduate, is influenced by international trends and fashions. Undergraduate curricula have been adapted to focus specifically on the health needs of South African patients. In my view postgraduate training in cardiology has not adapted appropriately. Registrars concentrate on acquiring skills in procedures such as percutaneous coronary interventions, pacemaker implantation and arrhythmia ablation. This is driven by the imperatives both of learning skills in demand in the private sector, and of completing the log-book which is a condition of qualification enabling them to enter private practice. Procedures are easy to count and monitor. The careful clinical evaluation and skilful judgement so important in the management of patients with valvular heart disease is far more difficult to measure and evaluate.

Students, of course, will learn whatever they understand they are likely to be examined on. In this regard the

examination of the Colleges of Medicine for the Certificate of Competence is crucial. The content of the examination should fit the disease profile of the country. In the recent past the subject allocated the greatest number of marks was coronary disease – a condition still relatively uncommon in the majority of the population. Very few questions have dealt with valvular or pericardial disease.

Impact of HIV /AIDS

HIV/AIDS is the leading cause of death in South Africa and the impact is greatest in the population under 40 years of age.[3] This is the population where rheumatic valvular heart disease is commonest. I believe the epidemic has and is influencing the management of patients with valve disease. Many practitioners adopt a nihilistic or fatalistic approach when faced with HIV-infected patients. This is a reflection of a combination of factors including fear of infection and ignorance and insecurity about treatment and drug interactions. The delay in implementing effective treatment strategies in the public sector has almost certainly contributed to this. The result is conscious or unconscious discrimination in referral and selection for surgery when patients are known to be infected with HIV or to have AIDS.

Clearly this is incorrect and must change. The expected 5-year survival of a 30-year-old patient on highly active anti-retroviral therapy (HAART) with a CD4 count of 100/μl is as good as or better than that after mitral valve replacement. Such patients should not be denied the symptomatic benefit valve replacement offers.

However, many important issues are unresolved in this area. Among them are the following: (*i*) at what level of immunosuppression is surgery safe and when is it futile?; (*ii*) how does the availability of HAART influence this?; (*iii*) what valve prostheses should be used in these patients?; (*iv*) how should HAART be managed perioperatively?; and (*v*) how does HAART interact with warfarin and other cardiac medication?

I believe that very few cardiologists or cardiac surgeons in South Africa can answer these questions authoritatively (I certainly cannot).

Are there solutions?

It is much easier to describe the problems than to prescribe the solution. The challenge we face is to maintain skills and competencies and provide adequate training in therapeutic cardiac procedures applicable to all in the country and not to

allow budgetary constraints or internationally fashionable trends to influence our practice to such an extent that certain groups of patients with specific diseases are disadvantaged. There is much we can do.

1. We can continue to point out to policy makers that current budgetary stringencies specifically disadvantage certain groups of patients. Rheumatic valvular heart disease is a disease of young black South Africans and is very uncommon in whites. Continuation of these budgetary policies for very much longer will mean that even if the policies are ultimately reversed and adequate funding to allow treatment of a reasonable number of patients is made available, the necessary competencies will have atrophied to such an extent that treatment may well be impossible, ineffective or unsafe. Retraining surgeons and rebuilding units will be a costly affair. A precious health care resource, unique in sub-Saharan Africa, which should be available to train cardiac surgeons and cardiologists for the treatment of cardiac diseases that are common in Africa will be lost and may well be irreplaceable.

2. We need to pay careful attention to the prioritisation of the health care resources under our direct personal control to ensure that they are distributed equitably. Most patients with coronary artery disease belong to vocal constituencies and are more likely to insist on treatment. Language barriers, lack of telephonic contact, financial constraints and patients' own acceptance of an inadequate system mean that those with rheumatic valve disease often do not get appropriate treatment, are 'lost' off waiting lists or miss follow-up appointments.

3. Postgraduate cardiology and cardiac surgical training needs to be aligned with the needs of an African country. If case numbers are not adequate then programme directors need to point that out and they need the support of their universities in debate with provincial health authorities. Those who allocate finances need to be made aware of the potential long-term consequences of the short-term triumph of 'remaining in budget'.

4. The magnitude of the problem needs to be defined accurately. Budgets can only be allocated appropriately if accurate statistics are available. Acute rheumatic fever is a notifiable disease and it is our responsibility to ensure that notification is done. This is a professional task often left to junior staff. Everyone has to take responsibility for ensuring that notification has taken place and that the correct diagnoses are entered on the discharge summaries.

5. We need to ensure that what we teach our registrars, how we train them and what we examine them on is applicable to the diseases affecting all the people of the country and not just to the needs of those with access to private medical care.

6. A clear strategy needs to be developed for the management of patients with valvular heart disease who are HIV-positive or who have AIDS. At present it seems that no clear policy exists and the management of individual patients depends as much on whim as on informed opinion. Cardiologists and cardiac surgeons need to learn and understand the impact of therapy on the natural history of the condition and how it interacts with their own treatment. Each unit needs to develop a clear policy that is explicit and readily available to staff at all levels so that patients are referred appropriately for surgery and not discharged from lower levels of care simply because they are HIV-positive. At the same time detailed records of outcomes need to be maintained to facilitate clinical research to inform future management of this novel combination of diseases that will remain important in Africa in the foreseeable future.

Little of this is original and much has been addressed previously in the wider field of medicine in general.[4] However it is important for each sub-specialty to consider how it should best adapt to the challenges facing it to ensure that the patients it serves obtain the best possible care under rapidly changing and difficult circumstances.

1. Epidemiology of group A streptococci, rheumatic fever and rheumatic heart disease. In: World Health Organization Expert Consultation on Rheumatic Fever and Rheumatic Heart Disease. *World Health Organ Tech Rep Ser* 2001; No. 923.
2. McLaren MJ, Hawkins DM, Koornhof HJ, *et al.* Epidemiology of rheumatic heart disease in black schoolchildren of Soweto, Johannesburg. *BMJ* 1975; **3:** 474-478.
3. Bradshaw D, Groenewald P, Laubscher R, *et al. Initial Burden of Disease Estimates for South Africa, 2000*. Cape Town: South African Medical Research Council, 2003.
4. Benatar SR. Health care reform and the crisis of HIV and AIDS in South Africa. *N Engl J Med* 2004; **351:** 81-92.