

## EDITORIAL



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## TAVI in Africa - Destined for the townships or dashing for the “ivory towers”?

Few treatments in the field of cardiology are more established than surgical aortic valve replacement for symptomatic severe aortic stenosis. It is estimated that over a million of these procedures have been performed since the first implant half a century ago and a 30-day mortality of less than 4% is often quoted. Although randomised trials comparing aortic valve replacement to optimal medical treatment for aortic stenosis have never been done, actuarial survival curves comparing valve replacement to medical therapy alone and medical therapy including balloon valvuloplasty (not followed by valve replacement) clearly established the benefit of valve replacement.

The Achilles heel of the procedure is its invasiveness in a population of often very frail and elderly patients. Since Cribier's first transcatheter aortic valve implant (TAVI) in 2002, there has been an explosion of implants and an exponential expansion in our knowledge of the procedure. The high cost of the prosthesis has however put a damper on the widespread implementation of the procedure even in developed countries. The role of TAVI in a developing country like South Africa should therefore be scrutinised with great care and caution.

Due to the high cost of the procedure and the discrepancy in access to medical care between rich and poor in South Africa, TAVI is available to a very small proportion of our population. It may therefore be perceived as reserved for the elite. It has furthermore been developed and tested in a population where rheumatic heart disease has all but disappeared. In contrast, it has been claimed that Africa has a prevalence of rheumatic heart disease as high as 30 cases per 1 000. Clearly one cannot assume that the value of TAVI in treating degenerative senile aortic stenosis can be extrapolated to its value in treating a large portion of our valvular heart disease population that suffer from rheumatic heart disease.

Why then pursue TAVI in a country with limited health care resources if few are going to benefit?

Firstly, it is crucial that we develop and retain the expertise to offer South African patients access to the development of a major therapeutic advance for patients with valvular heart disease. The fact that

cost currently deprives most of our population from access to TAVI and the fact that it was developed to address degenerative senile aortic stenosis - whilst in South Africa an additional major burden of valve disease results from the high prevalence of rheumatic fever (a condition for which TAVI is as yet unproven therapy) - should not distract us. Many therapies now widely used in developed countries were initially assessed in poor populations in developing countries. It is ironic that TAVI, a novel therapy for valve disease, may in the future become a therapy that will be used widely in poor communities in developing countries, after first being tested in wealthy populations in developed countries!

We should not lose sight of the fact that a major benefit to the medical profession is the expertise and experience gained in setting up the TAVI programmes. This will stimulate local research and potentially the development and testing of prostheses suitable for use in rheumatic valve disease as well as a reduction in the cost of the device. It is however crucial that it be implemented correctly and that we take every precaution to ensure good and reproducible results. Key to obtaining good results is patient selection and building experience in identifying subjects who will do well with the procedure.

The procedure itself represents a number of challenges that are novel to all parties involved: surgeons are not experienced with guide-wires and catheters used in percutaneous procedures and cardiologists are not experienced in intervening in valvular heart disease. Similarly imaging specialists do not necessarily have experience in the clinical management of these patients or in the procedure and therefore parameters need to be set as to what should be evaluated prior to and during the procedure. These challenges can only be overcome if these specialists synergise their efforts and function as a team.

Furthermore, the TAVI teams must gain sufficient experience in performing the procedure and this can only be obtained if centres of excellence are established. This will, by definition exclude a large proportion of the interventional community including some very skilled operators. Naturally there is resistance to this policy limiting the number of operators performing this procedure. Whilst one empathises with

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those who feel excluded, it should be noted that the situation is not as novel or as elitist as critics may lead us to believe. A percutaneous intervention for valve disease well established in this country is mitral balloon valvuloplasty. When this procedure was first introduced by Inoue in 1982 it was every bit as novel and innovative as TAVI. Initially every cardiologist wanted to perform this procedure but 30 years later most cardiologists will have little reservation to refer a patient to a local high volume centre. Should the same not apply to TAVI? Certainly it should if we have our sights set on offering our patients a safe procedure by a skilled and experienced operator.

Ensuring good outcomes for the TAVI patients is crucial for the future of the procedure and to this end we have dedicated this issue of the journal to TAVI. Hellmuth Weich and co-workers share the results of the first 70 cases performed by the Western Cape TAVI centre established in the Panorama and Vergelegen Mediclinic Hospitals. Whilst documenting that the procedure can be performed efficiently in South Africa with outcomes comparable to international reports in the literature, this paper also highlights the unique challenges faced when establishing a TAVI service in a developing country. The paper by Carl Schultz and Peter de Jaegere from the Erasmus Medical Centre in Rotterdam on the role of multislice computer tomography in TAVI emphasises the need for expertise and infrastructure in pre-procedural cardiac imaging if one is to perform TAVI efficiently. During the procedure the role of the anaesthetist is critical. The commentary by Rocco Vivier on the role of the anaesthetist draws from the experience gained by the Western Cape group and offers practical advice on the anaesthetic management during the procedure. Most experts agree that the single most important predictor of success is good co-operation between the members of a multi-disciplinary team, especially between surgeons and cardiologists. Joerg Kempfert and his colleagues from Bad Nauheim in Germany share their views on the surgeon's role in TAVI. Their commentary, not only provides a concise review of the surgical aspects of TAVI, but also addresses future developments that will redefine the respective roles of the cardiologist and the cardiac surgeon in the TAVI team. The principle of a team approach is emphasised and they are clear in their message that this procedure should not be done by either surgeons or cardiologists in isolation. An aspect of TAVI that cannot be emphasised enough is the selection of patients. Assessing patients for TAVI has emphasised the need to develop more accurate ways to assess and predict the risk of intervention in the current target group for TAVI, the frail and elderly. Assessment is not addressed in this issue, but will be featured in a future Journal edition.

Currently TAVI is limited to patients who can personally fund this expensive procedure or have access to a medical aid that covers it. Funders do not have a uniform policy towards funding TAVI and it is important that the profession leads the way by providing clear local guidelines based on the international literature whilst taking local factors into consideration. The South African Society of Cardiovascular Intervention (SASCI) and the Society of Cardiothoracic Surgeons of South Africa (SCTSSA), under the auspices of the South African Heart Association, have produced a consensus statement and guideline on

TAVI implantation in South Africa. This important document is featured on page 40 of this issue and will assist funders and policy makers in creating an even playing field for the patient seeking access to this advance in our ability to treat valvular disease.

So, what does the future hold for TAVI in South Africa? It would seem that health care cost will force us into “ivory towers”. In a biblical sense the term “ivory tower” is used as a symbol of noble purity. In modern usage it implies a metaphysical space disconnected from daily realities often used in a negative sense regarding specialists who are immersed so deeply in their fields of interest that their endeavours fail to benefit the masses not residing in the “ivory towers”. If TAVI is to reside in an “ivory tower” in South Africa, it had better be in the sense of noble purity. Our intention must be to build the beautiful “ivory towers” of TAVI in Houghton and in Hillbrow, in Waterkloof and in Diepkloof, in Summerstrand and in Soweto...