Global and African cardiology reaches out from the 13th SA Heart Association (SA Heart) Congress

NEW global and African initiatives in cardiovascular medicine were on display at the opening session of SA Heart 2012, which was attended by almost 1 000 delegates.

The launch of Africa PCR and an appeal for South Africa to join the Global College of Cardiology from the immediate past-president of the American College of Cardiology (ACC), Prof David R Holmes, are at the centre of these initiatives. The forthcoming 2013 World Congress Paediatric Cardiology and Cardiac Surgery in Cape Town will add further momentum.

Dr Adrian Snyders, President of SA Heart welcomed these efforts by all in the cardiology community, including all of SA Heart’s affiliated societies, says, “this congress and next year’s World Congress form part of our combined efforts to share expertise and experience to the ongoing benefit of our patients.”

Interest in the 2013 World Congress Paediatric Cardiology and Cardiac Surgery was evident – deadline for early bird registration is 31 October 2012

Sharing expertise at pre-congress workshops

SA Heart 2012, the theme of which was ‘Structural heart disease’, kicked off with a series of five pre-congress workshops that covered an impressive diversity of topics. The buzz around all five was considerable, with much animated discussion during the tea and lunch breaks as well as some stimulating debate during the question and answer sessions.

Workshop 1, entitled ‘Applied Science’, offered a challenging overview of some advances that might well change the face of certain aspects of cardiology (see more detailed report below for a few highlights).

Workshop 2 was a ‘Cardiology Update for the Non-Cardiologist’ and provided accessible and user-friendly introductions to such topics as the current best treatment for hypertension, diastolic heart failure, the limits of LDL cholesterol reduction and the basic mechanisms of vascular disease in diabetes.

Workshop 3, held under the auspices of the Cardiac Imaging Society of South Africa (CISSA), spotlighted the role of cardiac imaging in adult congenital heart disease. Topics included the role of imaging in cases of sudden cardiac death in young adults, as well as a segmental approach to echocardiography.

Workshop 4 was aimed at healthcare workers from allied professions, including nurses, dieticians and physiotherapists. Topics included the benefits of cardiac rehabilitation, what constitutes a healthy cardiac diet and a nursing perspective on the palliative care of patients with heart failure.

Workshop 5 had a rather more narrow focus. It was entitled ‘Tetralogy of Fallot – from child to adult’. A line-up of international experts gave their views on, among other subjects, the fetal assessment of Tetralogy of Fallot, the intervention options for treating cyanotic neonates with the condition, as well as the assessment of patients after Tetralogy repair.
IN view of the emerging trend towards evidence-based medicine, and the development of data registries internationally, nearly 10 years ago SAHA mooted the development of a national registry of cardiac procedures. Over time, this developed into the cardiology and cardiothoracic registry database known as ‘SHARE’. The main aim of this registry is to improve patient care through sharing data, experience and research between colleagues and associations. It aims to provide programmes for practitioners to self-review against national and international benchmarks, and have statistics on hand to provide guidance to the authorities that are planning healthcare strategies for our nation in the future, in light of the burgeoning epidemic of cardiac disease.

Although the development and roll-out of this database has been a great learning curve, with a few false starts early on, in the last four years it has really taken off. More than 40 practices in 15 hospitals in both the state and private sectors are participating regularly in data entry. SHARE is now celebrating having the largest national non-industry registry entry. SHARE is now celebrating having over 1,500 cardiothoracic surgeries and more than 10,000 catheterisation laboratory admissions. It now has a robust data cohort of a reasonable size which is being analysed. The results of more than 15,000 cases at a SHARE registry session will be presented at the combined SA Heart and 6th World Congress of Paediatric Cardiology & Cardiac Surgery in Cape Town in February 2013.

High-sensitivity troponin T as a biomarker for cardiovascular disease

EVEN minor elevations of cardiac troponins, and especially troponin T, have prognostic implications in the context of cardiac disease. This is according to Professor Hugo Katus, chief of cardiology in the Department of Internal Medicine at the University of Heidelberg, Germany. Professor Katus was instrumental in the development of the high-sensitivity troponin T (hs-TnT) assay, which offers improved sensitivity and increased signal-to-noise ratios. “Lowering the cut-off limits improves acute risk prediction,” he said.

Previously considered useful mainly in the context of diagnosing myocardial infarction (MI), where it allows for a 100% correct diagnosis 12 hours after the onset of chest pain, Professor Katus underscored that the usefulness of troponin T goes beyond this to embrace other aspects of cardiovascular disease. “It is also a long-term predictor of acute coronary syndrome (ACS), and treating patients appropriately will decrease their risk. Patients who test positive for hs-TnT may require more aggressive medical treatment, and hs-TnT can help us determine when treatment is required.”

Even in non-ACS and non-ischaemic disorders, the majority of patients still test positive for elevated troponin T and this has negative implications. Many of these patients have worse outcomes than patients with MI, regardless of whether those MI patients have ST segment elevation (STEMI) or not (non-STEMI). “It is a marker of cardiac distress that may not necessarily be MI, but is still indicative of high risk,” continued Professor Katus. “It’s an excellent marker for outcome in pulmonary embolism and there is also evidence that it is implicated in heart failure, where it is an excellent predictor of adverse outcomes. Cardiac distress releases troponins, and this is associated with a greater risk of cardiac mortality. There is a clear relationship between troponins and a decline in ejection fraction, suggesting that we’re dealing with a myocardial problem rather than an ischaemic one, as elevated troponins are found even in the absence of ischaemia and ACS.”

Even in stable coronary artery disease, elevated troponin levels are associated with adverse outcomes. “Increasing troponin levels predict more cardiac events even in healthy populations,” said Professor Katus. “Hs-TnT can pick up even subtle myocardial injury, and this has implications for treatment as, regardless of the cause, it is associated with a worse prognosis. We need to treat immediately, even in the presence of minor elevations and assess the causes very carefully to identify even those stable patients who might be at higher risk,” he concluded.

The practical management of the new oral anticoagulant, dabigatran

WARFARIN is a good drug for stroke prevention in atrial fibrillation, a consistent finding in both open label and double-blind trials. Yet the decision whether or not to use warfarin is driven more by its perceived risks, notably intracerebral bleeding, than its benefits. “We’re more influenced by the harm we do than the good we do,” said Professor Michael Ezekowitz, of the Thomas Jefferson School of Medicine, Wynnewood, Pennsylvania, USA. “There has therefore been a massive effort to develop an alternative to warfarin that is more user-friendly.”

Dabigatran is a new oral anticoagulant, which has highly predictable pharmacology and few drug/drug interactions; unlike warfarin, it requires no monitoring. It represents a ‘paradigm shift’ in anticoagulation. “The bottom line: its 150mg dose is superior to well-controlled warfarin, but does carry an increased risk of gastrointestinal bleeding, dabigatran’s only liability. The 110mg dose is as good as warfarin, but safer. It’s therefore important to identify those patients at increased risk of bleeding,” said Professor Ezekowitz. Predicts dabigatran will lower the incidence of atrial fibrillation-related strokes when the findings of clinical trials are translated into practice.
The phenomenon of catecholamine-induced cardioprotection: possible mechanisms

“There is a death of myocardial cells is a catastrophic event, so preserving the viability of the myocardium is a major aim. The discovery of ischaemic preconditioning” in the 1980s could be the basis of new ways to achieve this.” Professor Amanda Lochner gave an overview of her work in this regard. “The heart has intrinsic mechanisms of profound protection, and almost anything potentially harmful can elicit a reaction in small quantities, providing the strongest in vivo protection against ischaemia. There has been enormous interest in elucidating this mechanism of protection, as it could lead to the development of pharmacological agents.”

She and her colleagues have evaluated the roles of adenosine, a well-known protective substance, and its receptor subtypes, the generation of oxygen free radicals (ROS) and activation of the KATP channels as well as the phosphoinositide-3-kinase (PI3K/PKB/Akt and extracellular signal-regulated kinase (ERK) signal transduction pathways during the triggering and mediation phases of beta-adrenergic preconditioning. Activation of ERK and PI3K/PKB/Akt (the so-called risk pathway) during the triggering and reperfusion phases is associated with cardioprotection.

Cardiac troponins: better prediction and more disappointment

“From a laboratory perspective, hs-TnT is an excellent assay and the science underlying it is beautiful. Yet some people are disappointed with the results. What could this mean?” The question was posed by Dr JB Ubbink of Vermaak and Partners Pathologists.

Dr Ubbink contended that the assay’s decreased diagnostic specificity and its non-specificity for ischaemic myocardial necrosis could lead doctors to incorrectly equate an increase in serum troponins with a MI. “This is not correct, as there could be a non-ischaemic cause for the raised levels. Laboratory tests don’t make diagnoses, doctors do. There are too many false positives, so one should not diagnose MI solely on the basis of a single laboratory test without taking into account echocardiographic and other evidence. By dichotomising matters, rather than seeing the disease process as a continuous variable, we miss golden opportunities to intervene to promote better health outcomes.”

That hs-TnT allows for the detection of elevated cardiac troponins, even in the majority of healthy patients, has had the unintended consequence of causing problems in the laboratory/clinician interface. Dr Ubbink feels that this is the reason for the disappointment. He underscored, however, that it’s not the quality of the test that is at issue, but rather its widespread inappropriate use. “Our goal is to make a diagnosis before clinical manifestations occur and high-sensitivity assays give us the tools to do this. However, a diagnosis should never be based on a single assay and we should never lose sight of the fact that an acute MI is part of a continuum. Suboptimal laboratory reporting relative to previous results and a lack of standardisation of the various other troponin assays are also potentially problematic,” he said.

Used appropriately, however, hs-TnT has an important role to play. “Raised troponin levels stand out as an independent prognosticator of all-cause mortality and strongly support prospective intervention with more intensive diagnostic and therapeutic measures in appropriate patients,” he concluded.

Hypertrophic cardiomyopathy

The first plenary session of SA Heart 2012 spotlighted the topic of hypertrophic cardiomyopathy. Four distinguished speakers gave their perspectives on different aspects of this condition

Evaluation of the patient with hypertrophic cardiomyopathy – the influence of morphology and physiology on treatment strategies

Dr VJ Nkomo, South African-born but now based in the USA, defined hypertrophic cardiomyopathy as a genetic disorder, the morphologic diagnosis of which is based on a hypertrophic non-dilated left ventricle. It is the leading cause of sudden cardiac death (SCD) in people under the age of 35. He underscored, however, that it is characterised by considerable morphologic heterogeneity, that this always needs to be kept in mind and that clinicians need to be sure which form of the disease they’re dealing with. “It’s also important to exclude phenomena that resemble hypertrophic cardiomyopathy, but which aren’t,” he said. “These differential diagnoses include cardiac amyloidosis, Fabry disease and hypertensive heart disease with secondary renal failure.”

The pathophysiology is complex, involving multiple interrelated abnormalities. It is particularly critical to distinguish between the obstructive and non-obstructive forms of the disease. “Left ventricular outflow tract obstruction is an important prognostic indicator,” said Dr Nkomo. “It predicts disease progression to grade 3 or 4 heart failure and death from heart failure or stroke. Cardiomyopathy with obstruction is associated with lower survival than cardiomyopathy without.”

Patients with progressive symptoms, who fail to respond to maximal medical therapy, may be candidates for surgical intervention, but various factors need to be taken into account when determining treatment strategies.

Management of hypertrophic cardiomyopathy – evidence and uncertainties

Professor Bernard J Gersh, professor of medicine at the Mayo Clinic College of Medicine in the USA, and also an ex-South African, evaluated the two most common surgical interventions for hypertrophic obstructive cardiomyopathy, namely surgical septal myectomy and alcohol septal ablation. He was involved in the compilation of the guidelines for their respective use.

He, too, underscored the prognostic heterogeneity of the condition. “The most common symptoms are dyspnoea, angina and syncope, yet large numbers of patients are asymptomatic and have normal longevity. Management needs to include the screening of first-degree relatives and the control of symptoms, if present. Affected individuals need to avoid competitive sports and isometric exercise, volume depletion needs to be addressed and vasomotor or inotropic drugs should not be taken. In older asymptomatic patients, reassurance and surveillance is important, as is the exclusion/management of hypertension. Goals of therapy are reduction of the exercise-induced gradient, reduction of oxygen demand and prolongation of the diastolic filling period.
Beta-blockers titrated to high doses are the cornerstone of medical management. Calcium channel blockers can be added in the minority of patients who fail to respond to the titration of the beta-blockers.

Success is determined by the resolution of symptoms and the absence of side effects. If medical therapy fails to achieve this, septal myectomy or septal ablation should be considered.

Surgical myectomy is indicated where there is left ventricular outflow tract obstruction, the abovementioned most common symptoms and failure of medical therapy. “The results are excellent,” observed Professor Gersh. “Long-term survival is very good and the incidence of SCD is also extremely low - around 1% at one year.”

The big question, however, is does it prolong life? On this question, Professor Gersh underscored that there were no data to support its having a mortality benefit and that this should not be used as a sole indication for myectomy. Erring on the side of caution, he simply pointed out that the results are ‘better than expected’.

Turning to alcohol septal ablation, he was emphatic that it is efficacious when performed in an experienced institution. However, the complication rate exceeds that of myectomy, which is also associated with better resolution of symptoms in patients under 65.

The guidelines give a class IIA recommendation that surgical septal myectomy (performed in experienced centres) is the gold standard and should be the first consideration in the majority of eligible patients. Alcohol septal ablation also has a class IIA recommendation in patients ineligible for surgery. It has a class IIB recommendation in eligible patients with severe drug-refractory symptoms and left ventricular outflow tract obstruction – but only if performed in an experienced centre. A class III recommendation is that it not be undertaken in patients under 21, and that it be discouraged in those aged 21-40 in whom myectomy is a viable option.

Summarising, Professor Gersh said that ablation is preferred in generally sedentary elderly patients, with co-morbidities and a limited expected lifespan. Myectomy should be the first choice in more active, generally healthier younger patients with a longer expected lifespan. “I feel that the guidelines we’ve come up with are a balanced document that will survive the next five years,” he concluded.

Surgical options in hypertrophic obstructive cardiomyopathy

Dr Johann de Villiers, former head of cardiothoracic surgery at the University of Pretoria, gave a brief overview of the history of surgical interventions in this context, noting that the options have advanced to address all aspects of left ventricular outflow tract obstruction. “The choice of treatment should be determined by the morphology of the condition, the age of the patient and concomitant surgical abnormalities.” He offered the following seven options.

1. Extended surgical myectomy
2. Various procedures focused on mitral valve and subvalvar structures
3. Modified Konno Rastan procedure (which is especially useful in small patients with severe left ventricular outflow tract obstruction and an abnormal aortic valve)
4. Apical myectomy (in the specific context of the apical variant of obstructive cardiomyopathy, one of the morphologic variances mentioned earlier by Dr Nkomo)
5. A right ventricular approach (where there is mid-cavity obstruction as well as right ventricular obstruction)
6. Mitral valve replacement (this is not a primary treatment and should only be considered in the context of mitral valve pathology that cannot be repaired)
7. Heart transplantation (the treatment of last resort).

He largely echoed Dr Gersh’s feeling that alcohol septal ablation is restrictive and that surgical myectomy is the gold standard in treating drug-resistant patients. He concluded by quoting Dr Sigward, the father of alcohol septal ablation, to the effect that it was never intended to replace surgery in symptomatic hypertrophic obstructive cardiomyopathy patients.

The medical and electrophysiological management of hypertrophic cardiomyopathy

Dr Roland Tilz, of the Aesklepios Klinik St Georg, Hamburg, Germany, said that hypertrophic cardiomyopathy is usually diagnosed on echocardiography and underscored Dr Gersh’s observation that while the primary symptoms are dyspnoea (90% of symptomatic cases), chest pain, arrhythmia and syncope, many patients are only mildly symptomatic or even asymptomatic. The most horrific consequence of the condition is SCD, and the risk is increased in patients diagnosed before the age of 20.

Beta-blockers and the calcium channel blocker, verapamil, are the most widely used medical therapies, regardless of whether the cardiomyopathy is obstructive or not. “They reduce heart rate and prolong the diastole, increasing ventricular filling. The beta-blockers reduce myocardial oxygen demand,” he observed.

Arrhythmias are a worrying effect of the disease. While atrial fibrillation is a particular issue in these patients, Dr Tilz considers ventricular arrhythmias to be an even greater concern. “The loss of atrial contraction, associated with atrial fibrillation, reduces ventricular filling. This means that hypertrophic cardiomyopathy with concomitant atrial fibrillation often degenerates to a point where the patient also develops ventricular fibration, something that dramatically increases the incidence of stroke and the risk of SCD.”

When a ventricular arrhythmia is present, the gold standard treatment involves the use of an implantable cardiac defibrillator (ICD). Medical treatment with amiodarone may improve symptoms, but not prognosis. SCD, the most extreme scenario, should always be borne in mind. “Family history is a strong predictor and a history of syncope also needs to be taken very seriously. A small ventricular cavity and non-sustained ventricular tachycardia are predictors in patients under 30. These individuals are at high risk of SCD. Another risk factor is an abnormal blood pressure response during an exercise test. If the blood pressure fails to rise or even falls, its negative predictive value is very high,” he said.

Dr Tilz concluded that ICD therapy is the treatment of choice in these high-risk patients. “If there has been prior cardiac arrest or there is sustained ventricular tachycardia, it should be recommended. Even in the absence of these, but in the presence of a family history of SCD, a left ventricular wall thickness >30mm and/or unexplained recent syncope, it remains a reasonable consideration.”
Acute myocarditis to chronic dilated cardiomyopathy – how?

IN a parallel group session following the plenary session on hypertrophic cardiomyopathy on day 2 of SA Heart 2012, Professor Leslie Cooper, from the Mayo Clinic in Rochester, Minnesota, USA, said that there are a number of variables that predict the progression from acute myocarditis to chronic dilated cardiomyopathy (CDM). These include genetic/autoimmune components as well as viral infection.

Myocarditis presents in various ways, but Professor Cooper’s talk focused on a model that involves an initial injury to the myocardium, for example by a virus such as the Coxsackie virus. “The death of the cardiac myocytes evokes a robust immune response, as autoantibodies develop not only against the virus, but also to endogenous epitopes. Broadly speaking, one of two things happens: patients either recover or else they develop CDM with persistent activation of the immune system.”

Approximately 60% of children with acute myocarditis regain normal left ventricular function, while 10% die and 20% require a heart transplant. The picture is different in adults. Despite their doing slightly better than children in respect of death or requiring a transplant, only 20% of men recover full left ventricular function. Women do slightly better, however, suggesting a gender difference. Research also indicates that there are racial differences. In black and white patients with similar ejection fractions, recovery at six months has been shown to be statistically significantly worse in black patients, who are at greater risk of death or requiring transplantation.

Turning to the association between enteroviral infection and clinical outcome, Professor Cooper said that the presence of an enteroviral genome in the heart was associated with a worse outcome in respect of death or the need for a transplant. “The data are secure, though the reasons are variable and there isn’t always additional immune system activation,” he continued. The data are less robust when it comes to non-enteroviruses, however.

Regulatory T-cells are central to the induction of self-tolerance and the prevention of autoimmunity, and their absence causes severe autoimmunity. Regulatory T-cell levels are lower in the presence of myocarditis than in dilated cardiomyopathy, and in turn they remain lower than normal in the latter.

“Despite guideline-based heart failure therapy, many patients with acute myocarditis progress to CDM. Acute myocarditis thus partially predicts the risk of subsequent CDM. Persistent viral infection may be a contributing factor,” concluded Professor Cooper.

PCR Comes to Africa

25 years ago two young cardiologists from Toulouse in France, Prof Jean Marco and Dr Jean Fajadet, organised a meeting specialising in the rapidly developing field of interventional cardiology which they named PCR, an acronym of Percutaneous Coronary Revascularisation.

From an initial attendance of 50 doctors, this meeting expanded annually until it eventually relocated to Paris where in 2012 numbers now exceed 13000. The meeting has become the leading meeting of this kind in Europe. It has developed a unique teaching style with emphasis on clinical applications using live case demonstrations, case based studies and teaching tools to provide a comprehensive practical approach to the discipline. Technology in this field has advanced constantly over this period and the programme content has expanded to bring the latest research and development to the classroom for attending cardiologists, allied professionals and industry from all over the world each year.

Affiliation with European Association of Percutaneous Coronary Intervention (EAPCI) has seen it become the official Intervenotional congress of European Society of Cardiology (ESC) and it now carries the title of EuroPCR.

10 years ago a similar interest group of SA Heart Association was launched as the South African Society of Cardiovascular Intervention (SASCI) which pursued active participation in the activities of EuroPCR and members of SASCI are now regular participants in the EuroPCR programmes. This close collaboration has lead to the desire to extend the unique teaching philosophies and programmes into Africa as a whole, where interventional techniques are needed beyond just coronary and vascular disease and into less invasive opportunities for the treatment of valvular, congenital and non-communicable diseases. Hence the launch of AfricaPCR this year as a satellite of the 2012 SA Heart Association meeting in Sun City and similar participation in The World Paediatric Cardiology Congress to be held in Cape Town in February 2013. Collaboration with the Pan African Society of Cardiology (PASCAR) will see AfricaPCR attend to the specific needs of Africa’s cardiovascular challenges and develop into a unique annual meeting of its own from 2014 onwards.

Dr Tom Mabin, Cardiologist, Vergelegen Mediclinic, Somerset West
Treating left main stem and multivessel disease – surgeon versus cardiologist perspectives

The second plenary session at SA Heart 2012 took the form of a stimulating debate as to whether percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) was the superior approach to treating both left main stem and multivessel disease.

Left main stem disease – the surgeon’s perspective
Dr David Taggart, professor of cardiovascular surgery at Oxford University, UK, was upfront that he generally believes CABG to be the best treatment for both left main stem and multivessel disease. Randomised controlled trials (RCTs), which are usually considered the gold standard when it comes to evidence, show little difference between the two, however. “But they involve small numbers and atypical populations with short follow-up times. Registry trials, on the other hand, involve large numbers of subjects and are more representative of clinical practice, complete with confounding factors,” he said.

Up to 90% of cases of left main stem disease involve distal or bifurcated lesions at risk of restenosis. CABG confers a survival benefit in these patients, though stenting may be appropriate in non-bifurcated lesions. “It’s therefore very important to consider the nature of the lesion (bifurcated versus non-bifurcated) and whether the patient is low- or high risk,” he said.

Turning to the SYNTAX trial, a major trial of PCI versus CABG, he pointed out that it was unique in being an ‘all-comer trial’, where previous RCTs had been highly selective. A parallel registry looked at patients deemed ineligible for randomisation and 35% of these were assigned to CABG. The four-year interim results showed that cardiac death/myocardial infarction was slightly lower with CABG, the stroke incidence much higher with PCI and the need for repeat revascularisation lower with CABG. “While CABG was associated with higher mortality in low- and intermediate-risk patients, this trend was reversed in high-risk patients.” These data conflict somewhat with those of the Korean PRE-COMBAT study, which showed no difference in stroke risk and no increased mortality risk in the study’s patient population, which was generally lower-risk and had a lower severity of coronary artery disease (CAD). Dr Taggart is optimistic that the forthcoming EXCEL trial will provide definitive results.

Current guidelines show PCI as a Class IIa/b indication if there is easy anatomy and the patient is low risk. CABG, on the other hand, is still a Class I indication. Dr Taggart believes that it’s the best choice in two-thirds of patients. “Two-thirds of all patients with left main stem disease have a strong survival advantage with CABG, even at three years,” he concluded.

Left main stem disease – the cardiologist’s perspective
Professor David Holmes, of the Mayo Clinic, Rochester, Minnesota, USA, warned that it’s important to avoid the ‘routine’ – and that left main stem disease doesn’t ‘routinely’ equal surgery. “Patient-centric care needs to take various factors into account, including patient preference and what is important to them.” He cited a patient of his own on whom, between 1979 and 2007, he’d performed 15 PCIIs. “I considered this to be an embarrassment, but when I said as much to my patient, he didn’t agree. For him it was a triumph, as his primary aim was to avoid surgery at all costs.”

Citing meta-analyses of PCI vs CABG, he said there was no difference between the two when it came to mortality. “If mortality is the endpoint that the patient is most concerned about, then they’re about even. But if the patient doesn’t want to see you again, surgery might be the better option.”

His advice is to ‘keep it simple’. In cases of unprotected, left main coronary artery (LMCA) stenosis, the best evidence suggests that one should put in a single stent. “Always use the most straightforward approach. Current drug-eluting stents are safer than the earlier ones that caused concern.” He also stated that for ostial/midshaft LMCA stenosis, PCI is the best choice because there is too much competitive flow for CABG.

Professor Holmes believes that appropriate treatment is treatment that is customised to the patient’s needs and values. “When complex disease is present, a heart team should render an opinion. Cardiologists and surgeons are in the same boat, as ultimately we want what’s best for the patient. We may not be perfect, but we suit each other admirably. In recent years we’ve both changed our views. Surgeons no longer believe cardiologists shouldn’t treat LMCA disease, while cardiologists are no longer looking to an end to CABG in this context. Both sides are moving towards a centre.”

He concluded by underscoring yet again that patient expectations are incredibly important. “We need to be more than technicians and ensure that we provide optimal care for the specific patient at hand. We can use science to achieve that.”

Multivessel disease – the surgeon’s perspective
Dr Taggart was adamant that in this context, too, CABG is the best treatment – and that patients need to know this. “The evidence shows contemporary CABG to be excellent in patients with CAD and to have significant benefits over PCI, especially in diabetics and patients over 65. In those RCTs that failed to show benefit, however, this was largely because they included highly selected patients in whom it could have been predicted that there was no prognostic benefit. Registry trials, on the other hand, show that survival and freedom from revascularisation with CABG increase with time.”
Regardless of whether bare metal or drug-eluting stents are used, CABG confers a strong survival advantage relative to PCI in all patient categories. The inappropriate generalisation of trial results from highly select populations with multivessel disease has been ubiquitous and has in part justified the explosive growth of PCI in the developed world. SYNTAX has shown a survival advantage with CABG identical to all the registry trials.

He attributes CABG’s survival benefit to its ability to provide prophylaxis against future culprit lesions. “The complexity of the lesion is irrelevant in CABG. PCI only treats ‘suitable’ localised culprit lesions, with no prophylactic benefit against new disease. This nullifies the benefits of the stent, regardless of whether it’s drug-eluting or not.”

Dr Taggart maintains that CABG is the gold standard for multivessel disease. “It confers survival benefit, reduces the needs for revascularisation and it carries no difference in stroke risk relative to PCI. Yet 80% of patients undergoing PCI think it will improve life expectancy and 85% have had no discussion of CABG.”

Multivessel disease – the cardiologist’s perspective

Professor Bernard J Gersh, professor of medicine at the Mayo Clinic College of Medicine in the USA, had a somewhat laconic rejoinder to Dr Taggart’s impassioned presentation. “The train has left the station. PCI is going up and surgery is going down. The main issue for cardiologists is the cognitive decline many patients experience post-CABG and the implications of these changes not only for the patients, but their families and clinicians. They shouldn’t be minimised; and while CABG is much less invasive than it was previously, it will never be as non-invasive as PCI.”

Multivessel disease is not a single entity. Professor Gersh echoed Professor Holmes’ views on LMCA disease that it’s therefore important to choose the correct procedure for each individual patient.

“Much has been made of the limitations of RCTs, but unless you have clinical equipoise, RCTs would be unethical. It’s a simple ethical fact that one has to be comfortable randomising the patients involved. Registry trials have limitations too – they may have greater relevance to practice at large, but there is huge selection bias.”

SYNTAX cast the widest net and showed that in complex three-vessel disease, one-third of patients do well with PCI, while two-thirds are better served by surgery. If you select appropriately, sending those at lower risk to PCI, your results will be the same. Physician judgement plays a huge role. Should all patients be sent to CABG? No! While I agree that surgery is the best option in complex, diffuse disease, there is nonetheless a place for PCI. Factors that need to be considered are whether one is dealing with two- or three-vessel disease (they’re not the same), the patient’s SYNTAX score and their surgical risk, taking into account age and co-morbidities.

“The take-home message from SYNTAX is that one-third of patients do well with PCI – and it’s important to remember that,” he concluded.

Basic Sciences session of the 13th annual congress of the SA Heart Association

THE Basic Sciences session started off with a lecture by Prof Lionel Opie on the utilisation of metabolic therapy for acute myocardial infarction (MI). He showed data following on the initial observations of Sodi-Pallares (1962) that a cocktail of glucose, insulin and potassium may have the potential to protect the myocardium after MI. The question was raised why basic science did not follow up on these findings and why only now, in 2012, exactly 50 years later, there is for the first time a trial in progress to fully investigate this observation. The IMMEDIATE trial, a randomised controlled trial is currently in progress (JAMA 2012; 307:1925).

Prof Amanda Lochner followed on this talk by describing results found by one of her PhD students, F Nduhirabandri, showing beneficial effects of melatonin treatment in a rat model of obesity and pre-diabetes. Control as well as obese animals lost weight despite there being no changes in food or water consumption. The pre-diabetic animals became more insulin sensitive and their hearts were protected, as shown by a significantly smaller development of infarct size after coronary artery occlusion and reperfusion. In addition, cardiomyocytes from these animals were sensitised to insulin. Melatonin also potentiated the effects of insulin in these cells.

Prof A-M Engelbrecht from the USA described the intricate signalling pathways involved in the process of autophagy in the heart and concluded that we still do not understand what precisely determines why autophagy seems to be cardioprotective under certain conditions but detrimental under others. Mr G Maarmann concluded this session by describing the different models that can be utilised in the laboratory to research right ventricular hypertrophy.

The short abstract presentations of this session were hugely informative and displayed the variety of basic science that is currently being performed in South Africa. C Garson (UCT) described the effects of acute ethanolamine administration in a model of isoprenaline-induced MI in Wistar rats. Although some of the results are still controversial, it would seem as if ethanolamine may have cardioprotective abilities.

Prof Leoné Malan from North West University, Potchefstroom Campus, described
A new company in South Africa, TORQUE MEDICAL, launched by Craig Goodburn, who is well-known to local cardiologists, focuses on interventional cardiology as a distributor for Invatec Coronary, MGuard and Tandem Heart left ventricular assist devices.

"These LV assist devices were developed in the United States and have an excellent track record in use by more than 3500 patients. The device can be used for extended periods of time because it is self-cooled and heparinised and has already been used in 22 patients in South Africa. The Milpark team asked TORQUE MEDICAL to support the product as the local agent was no longer active," Craig explains.

In addition, Craig has the agency for QUICKCLOT, a natural Kaolin product uniquely approved by the US Military Services. It is effective and safe to use in all emergency situations in the field and also in the hospital setting.

### At the break of dawn – a focus on anticoagulation

Speaking at a Bayer-sponsored breakfast symposium, Prof Barry Jacobson, haematologist, Witwatersrand University Medical School, stressed that rebound thrombosis is a significant problem which is poorly understood and inadequately addressed with all anticoagulants and anti-platelet agents. "Bridging or weaning needs to be considered and individualised for all patients," he advised. *This is an issue not yet well addressed internationally by current guidelines.*

I was pleased to see questions of clinical relevance being raised and innovatively addressed in the studies presented by Baragwanath Hospital; these young clinicians are really on track and offer great promise for the future.

Dr Martin Mpe, Cardiologist, Pretoria Heart Hospital and 1Military Hospital and Chair of the SA Heart Education Committee
Moments captured in the exhibition hall...

SA Heart was well-attended by delegates from Africa. Here from left to right, Dr Paresh Patel (Nairobi, Kenya), Zanele Ngema (Astrazeneca, SA) and Dr Dixon (Zimbabwe)

Dr Jan Szczygielski (Germiston Hospital) and Portia Nhlabathi (Servier) discuss a finer point of debate at the well-staffed Servier Stand

The Boston Scientific team were well represented at SA Heart
The interactive case discussion between cardiologists and cardiac surgeons was excellent!

Dr Lachman

Pharmaplan ensured that the doctors could remain proudly South African and watch the rugby during breaks!
In the Abbott hospitality suite, delegates viewed and voted for the best abstract presented at the congress.

Lesego Parkies and Dr Naren Jairam from Bayer (SA) with their campaign poster Sign Against Stroke. This is a global patient awareness campaign aiming to encourage comprehensive treatment of atrial fibrillation in order to reduce stroke.

Lots of activity in the exhibition hall showed the keen interest from all stakeholders.

At the Boehringer Ingelheim stand, Jan van der Merwe (Boehringer Ingelheim), Prof Pat Commerford (UCT) with Mark Savary (Boehringer Ingelheim).

Delegates in discussion with Viking staff at their stand.
Innovative ECG Holter Interpretation Service

FYSIOLOGIC ECG Services, an innovative service developed in the Netherlands, is now available in South Africa. This service records and analyses electrocardiograms (ECGs) for hospitals, clinics, medical specialists and general practitioners and provides a complete solution that does not require any capital investment from the healthcare provider.

The company’s qualified technical analysis team has years of experience and operates under the supervision of cardiologists. All digital ECG reports are available within 24 hours on request; emergency recordings are analysed within one hour.

The service uses a compact Multichannel ECG Recorder® which can continuously record for 14 days. It performs 24-48-72 hours Holter monitoring – 14 days maximum (event monitoring), 12 lead – 2 days maximum, and has capability of event monitoring and marking.

This service was founded in close cooperation with the Cardiology Department of the Academic Hospital Utrecht, the Netherlands, managed by Prof Dr FL Meijler and later by Prof Dr EO Robles de Medina. In South Africa 6 hospitals are already using the service:

- Life Vincent Palloti Hospital, Cape Town
- Life Fourways, Flora Clinic Hospital, Johannesburg
- Netcare Olivedale, Sunninghill, Milpark Hospital, Johannesburg
- Morningside Medi-Clinic, Johannesburg
- Linksfield Park Medical Centre, Johannesburg
- Hermanus Medi-Clinic, Hermanus

Cards to lower Cardiovascular Risk

A smart set of 7 cards available from AstraZeneca helps Primary Care Physicians to get patients to self-identify what risk factor they are willing to tackle. This ‘Did you know that’ series provides motivation to patient and care-giver – a really useful approach as a non-communicable disease lashes out at our community.