

# Cardiology Symposium 2009

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Cardiology has a strong tradition of evidence-based practice. This symposium reviewed current research in a few key areas of cardiology, both established and emergent, providing insights into how clinicians can translate this evidence into clinical practice.

## **Device therapy in heart failure: automated defibrillators and cardiac resynchronisation**

Professor John Cleland (Castle Hill Hospital, University of Hull) discussed the use of cardiac resynchronisation therapy (CRT) in heart failure, as detailed in his symposium review.

Dr Sean Balmain (Royal Infirmary of Edinburgh) and Dr Kerry-Jane Hogg (Stobhill Hospital, Glasgow) covered some of the issues surrounding follow-up and complications of CRT and automated defibrillator (AICD) implantation. They discussed the management of the surgical risks of device implantation. These include: bleeding, which can be reduced by the use of diathermy; infection, which is less common with scrupulous attention to asepsis, good haemostasis and the use of prophylactic antibiotics at insertion; and device extrusion through the skin, which is less common after subpectoral than subcutaneous implantation in frail or elderly patients. Device failures and unnecessary shocks also have a significant medical and psychological impact on patients; newer programming strategies, such as allowing devices longer to detect and assess arrhythmias, can reduce inappropriate therapy without increasing mortality, as up to 90% of detected arrhythmias terminate spontaneously if a longer detection time is permitted.<sup>1</sup>

## **How to identify patients who will benefit most from cardiovascular therapies**

Professor Keith Fox (Royal Infirmary of Edinburgh) opened the session with a discussion of patient selection for coronary angiography following non-ST elevation acute coronary syndrome. Patients presenting with an acute coronary syndrome with ST depression have worse outcomes after 15 days even than those with ST elevation. Patients at high risk of adverse outcomes, who have a greater benefit from early intervention, are less likely to undergo coronary intervention than their low- and medium-risk counterparts,<sup>2</sup> perhaps because high-risk patients are elderly and have greater co-morbidity, discouraging clinicians from offering intervention. This

highlights the need for a formal approach to risk scoring using the Global Registry of Acute Cardiac Events (GRACE) or similar risk scoring systems, which include parameters such as increasing age, vital signs, renal function, degree of heart failure and electrocardiogram as well as troponin, as troponin alone does not separate high- and low-risk patients. This should ensure that the patients most likely to benefit undergo angiography.

Professor Nilesh Samani (University of Leicester) described recent developments in cardiovascular genetics that have all contributed to enormous progress in the understanding of pharmacogenomics and the genetics of complex diseases. Ischaemic heart disease is no exception and the identification of as many as 12 genetic loci associated with increased coronary artery disease risk is likely to significantly change our understanding of this disease. Many of the loci are within non-coding regions or within genes that would not obviously be associated with coronary artery disease. These discoveries will, in the future, lead to novel targets for drug therapy and allow the addition of genetic information to traditional risk profiling – homozygosity for a high risk allele at the 9p21 locus carries excess risk similar to a 1 mmol/l increase in cholesterol or a 10 mmHg rise in diastolic blood pressure.

## **Case presentations and interactive audience participation: management of stable angina in 2009**

The first case presentation, by Dr Mahesh Pauriah (University of Dundee), provided an opportunity for the expert panel to discuss the management of chronic stable angina. The important findings of the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial,<sup>3</sup> which demonstrated the safety of medical therapy in low–medium risk patients were discussed. The second case, presented by Dr Jehangir Din (Royal Infirmary of Edinburgh), focused on the management of stable angina not responsive to medical therapy. The use of pressure wire studies to assess angiographic lesions was emphasised; visual assessment of stenoses is unreliable and measurement of the pressure gradient across a lesion is important in determining its functional significance.

Dr Chris Skene's (Royal Infirmary of Edinburgh) case concerned the management of three-vessel coronary

disease in the context of the findings of the SYNERgy between PCI with TAXus and Cardiac Surgery (SYNTAX) trial.<sup>4</sup> This trial introduced a scoring system for coronary lesion complexity and demonstrated that percutaneous coronary intervention (PCI) is safe, albeit with a greater need for subsequent revascularisation, in less complex disease when compared with coronary artery bypass grafting (CABG). It was pointed out by the panel that PCI in less complex disease does not preclude CABG at a later date as long as shorter, more proximal segments are treated, leaving targets for grafting.

### **The changing face of valvular heart disease**

Dr Stuart Shaw (Royal Infirmary of Edinburgh) gave a historical overview of balloon valvotomy for mitral stenosis before discussing some of the newer percutaneous approaches to mitral repair. These include coronary sinus devices to alter the valve ring geometry, clips which hold the central portions of the two leaflets together and stented valve replacements. None of these treatments have been trialled in large numbers of patients. They are likely to prove less effective than open surgical repair or replacement but may have a future role in those patients deemed unsuitable for these procedures.

Dr Johan Bence (Glenfield Hospital, Leicester) spoke of the experience of transcatheter aortic valve implantation (TAVI) in Leicester, where 79 patients have undergone the procedure. More than 4,000 have been carried out worldwide, and this approach offers a treatment

opportunity for the significant number of patients at too high a risk for open surgery. The Leicester experience is promising, with 30-day mortality at 9%, similar to local surgical figures for aortic stenosis. Other significant complications include stroke (2.5%), vascular access complications (6.3%) and atrioventricular block requiring permanent pacing (41%).

Mr Ciro Campanella (Royal Infirmary of Edinburgh) closed the day by reviewing patient selection for aortic valve replacement (AVR). He highlighted that the operative mortality for AVR is falling despite increasing age and comorbidity in the same group. He argued that even those patients who would not have been traditionally thought suitable for surgery should be discussed by a multidisciplinary team as improving outcomes and new techniques will increase the proportion of patients to whom AVR can be offered.

### **SUMMARY**

Over the years there has been considerable progress in cardiology, which has revolutionised care. This is set to continue with improving device technology and programming, new strategies in valve disease and increasing understanding of cardiovascular genetics. In addition there is a growing evidence base from large trials such as COURAGE and SYNTAX, which guide clinicians in their use of more established treatments.

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