

Cardiology symposium

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Medicine is increasingly evidence-based; cardiology has led the way with a strong research foundation, which has subsequently formed the basis of guidelines. The symposium reviewed developments in traditional topics and provided insights into the cutting edge technologies that have evolved rapidly and are increasingly important in the management of common cardiological conditions.

SESSION 1: STOPPING PEOPLE GETTING VASCULAR DISEASE

Management of risk factors (hypertension and lipids)

Professor Ian Wilkinson (University of Cambridge) highlighted the epidemiological data supporting the increased risk of stroke with hypertension. The latest data, in a cohort of 1.25 million patients, show that even patients in their thirties are at increased risk.¹ Previous guidelines advocated three readings to confirm hypertension; however there is variance even with three readings. Pickering first performed ambulatory blood pressure in 1968; ambulatory blood pressure is superior to clinic blood pressure in confirming the diagnosis, but needs to be converted to clinic blood pressure by adding 10/5 (systolic/diastolic). NICE guidelines now advocate ambulatory blood pressure measurement in patients with clinic blood pressures of 140/90 on two consecutive occasions.²

Dr Tom MacDonald (University of Dundee) defined resistant hypertension as uncontrolled blood pressure despite being on three drugs; in such cases it is important to check compliance. Adding a drug in patients with resistant hypertension is five times more effective than maximising the first. Renal nerve denervation was seen as a promising intervention but has shown not to be effective in sham-controlled trials (trials with a sham procedure arm and an active renal

denervation treatment arm),³ leading to a joint societies moratorium on renal nerve denervation in the UK. Potential reasons for the lack of benefit include incomplete ablations and the wide variance in operator experience. Other interesting procedures that have been attempted include baroreceptor stimulation, carotid body ablation, deep brain stimulation, and iliac arteriovenous anastomosis. These experimental procedures need to be evaluated in sham trials.

Professor Kausik Ray (St George's, University London) described the wealth of data on lipid modification and dispelled some myths of statin therapy. Statin side effects are related to drug or dose level, not LDL level. There is no increased risk of cancer, but statins do increase the risk of dysglycaemia. Despite this the benefits outweigh the risk; as an example atorvastatin 80 mg vs simvastatin 80mg increases diabetes risk by 12% but the benefits are greater overall; the risk is 16% lower than with simvastatin. Future therapies include mipomersen 200mg, which reduces LDL-C production by 28%, and PCSK9 inhibitors which can reduce LDL-C by 70%, over and above statins.

SESSION 2: ATRIAL FIBRILLATION

Shared decision making – how can we best do this for cardiology patients

Professor Richard Thomson (Newcastle University) explained why shared decision making is important and why it is needed in a specialty such as cardiology. Shared decision making improves adherence to medication and supported self-management has better outcomes. There are many preference-sensitive decisions in cardiology; warfarin, non-vitamin K antagonist oral anticoagulants, or nothing for stroke prevention; implantable cardioverter defibrillator or not in heart failure; percutaneous coronary intervention

or coronary artery bypass grafting; lifestyle advice. Option grids can help; one is available to aid decision making for implantable cardioverter defibrillator recipients and Patient.co.uk has decision aids for various conditions including atrial fibrillation.

Atrial fibrillation: irregularly irregular progress

Professor John Camm (St George's, University of London) gave the George Alexander Gibson Lecture on the progress made in atrial fibrillation. From antiarrhythmic therapy to reduction of thromboembolic risks with new oral anticoagulants, huge advances have been made in a condition that has become endemic. National (NICE) and international guidelines recognise this with recent updates in both.

SESSION 3: INTERACTIVE SESSION

Dr David Bennett (University Hospital South Manchester) opened the afternoon session with an excellent interactive session on ECG interpretation.

SESSION 4: ADVANCES IN CARDIOLOGY

Developments in interventional cardiology

Professor Nick Curzen (University of Southampton) went through the maze of data on antiplatelet therapy. Clopidogrel resistance is a problem in some patients but there no easy way to identify it. Newer antiplatelet drugs (prasugrel and ticagrelor) have been shown to be beneficial in randomised trials but they can increase bleeding risk. One option might be to prescribe clopidogrel for most patients, use a bedside test to identify clopidogrel resistance, and use newer agents in these selected patients.

Professor Adrian Banning (John Radcliffe Hospital, Oxford) continued with stent evolution. Current drug eluting stents are safe, effective, and deliverable, but there is still a risk of stent thrombosis and restenosis; bioresorbable stents aim to minimise this risk by providing a temporary scaffold for a minimum time period. The most widely studied fully bioresorbable stent is the Absorb stent with interesting data on potential late lumen enlargement and restoration of vasomotor function. NICE comments that patients should be informed on the lack of longer-term data and that all such implants should be audited locally.

Transcatheter aortic valve implantation (TAVI) has been a recent milestone in interventional cardiology. Dr Mark Gunning (University Hospital of North Staffordshire) detailed indications, complications, and

outcomes of the UK TAVI programme. The 2003 Euro heart survey showed that 31% of patients with severe symptomatic aortic stenosis did not undergo surgery. Indications for TAVI include patients with severe aortic stenosis who are not candidates for surgery; i.e., those that have been turned down by two surgeons. These are elderly patients with multiple co-morbidities. Outcomes of the UK TAVI have improved; the current 30-day mortality rate is 5% and complications are now comparable to international registries.⁴ The technology is evolving and will soon be applicable to high-risk patients rather than surgical turn-downs.

Developments in management of advanced heart failure

Dr Guy MacGowan and Professor Steve Clark (Freeman Hospital, Newcastle upon Tyne) concluded the afternoon session with the state of advanced heart failure, left ventricular assist devices (LVAD), and transplantation. Heart transplants in the UK have declined over recent years; the number of patients on the waiting list is rising, particularly those requiring urgent transplantation. VADs were initially developed as 'bridge to transplant' and have two year survival rates of 68%. Long-term, permanent LVAD support, in patients who are not candidates for transplant ('destination therapy') is a treatment option in the United States and Europe but isn't funded in the UK.

Patients eligible for VADs should be candidates for potential transplant. Referral criteria include repeated hospitalisations, deteriorating renal function, escalating diuretics and frequent implantable cardioverter defibrillator shocks.⁵ Increasing donor age and ischaemic time continue to be a problem with transplants but this remains the gold standard; VADs can treat more patients and technology is evolving constantly. Xenotransplantation faces technical difficulties but organ engineering and stem therapy may have a role.

SUMMARY

Considerable progress has been made in the understanding and management of cardiovascular risk factors. Interventional cardiology has developed rapidly, particularly with regard to TAVI, and VADs have changed the management of advanced heart failure. Technology will continue to evolve and will impact on the cardiological management of the increasingly elderly population with multiple co-morbidities. In addition, novel therapies such as stem cell and organ engineering may have an impact on the challenges that remain in advanced heart failure and cardiac transplantation.

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