

RCPE Symposium – Cardiology

Mark Thomas^{1,2}

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Correspondence to:

Mark Thomas
Institute of Cardiovascular
Sciences
University of Birmingham
Birmingham B15 2TT
UK

Email:

M.R.Thomas@bham.ac.uk

Introduction

The practice of cardiology is rapidly evolving and new diagnostic and treatment options are becoming available every year. As more options become available, it becomes more and more challenging to ensure that the latest, most up-to-date evidence-based care is delivered. These are exciting times for the field of cardiology and the symposium provided a state-of-the art update from world-leading experts.

Session 1: Heart failure – what's new?

The symposium opened with a talk from Professor John Cleland (Professor of Cardiology, University of Glasgow) discussing the complex, heterogenous pathophysiology of heart failure with preserved ejection fraction (HFpEF). He highlighted the important role of N-terminal-pro hormone brain natriuretic peptide for both diagnosis and prognosis in this group of patients.¹ Although treatment options for HFpEF are still limited, some patients, particularly those with hypertension, could benefit from angiotensin-converting-enzyme inhibitors.

Dr Stephen Pettit (Consultant Cardiologist, Royal Papworth Hospital, Cambridge) described the ever-increasing demand for heart transplantation and lengthening waiting lists. He showed how the novel use of donation after circulatory death helped to reduce waiting times at Papworth Hospital. Unfortunately, patients may deteriorate whilst awaiting transplant and left ventricular assist devices have made huge progress in recent decades, offering an effective bridge to transplantation.

Professor Theresa McDonagh (Professor of Cardiology, King's College London) described the benefit of dual inhibition of neprilysin and renin-angiotensin systems with sacubitril/

valsartan in select patients with stable heart failure and reduced ejection fraction. She highlighted emerging evidence that it may be possible to start this treatment in patients admitted with acute heart failure. As patients survive longer with heart failure, there is increasing need to manage comorbidities and anaemic heart failure patients may benefit from iron infusions, for example.

Session 2: Hypertension, lipids and diabetes: moving targets and new drugs

Professor Adrian Brady (Professor of Cardiology, Glasgow Royal Infirmary) highlighted blood pressure as one of the most important risk factors for cardiovascular disease. He described evidence from the SPRINT trial that targeting blood pressure under 120 reduced all-cause mortality leading to changes in guidelines.² Although it was a small study, the DASH study showed that a healthy diet can reduce blood pressure and it has recently been shown that lorcaserin is effective at reducing weight with very few significant adverse effects.

Dr Derek Connolly (Consultant Interventional Cardiologist, City Hospital, Birmingham) showed that statins have made huge progress in reducing levels of low-density lipoproteins (LDL) and lower levels of LDL are associated with lower rates of adverse cardiovascular events. The advent of PCSK9 inhibitors now allows for even greater reductions in LDL, which further reduces the risk of adverse cardiovascular events. Since PCSK9 inhibitors have very favourable safety profiles, PCSK9 gene silencing and vaccination offer promising possibilities for the future.

Professor Naveed Sattar (Professor of Metabolic Medicine, University of Glasgow) demonstrated some of the recent dramatic developments in diabetes medications. Sodium-

¹NIHR Clinical Lecturer in Cardiovascular Medicine, Institute of Cardiovascular Sciences, University of Birmingham, Birmingham, UK; ²UHB and SWBH NHS Trusts, Birmingham, UK

glucose co-transporter-2 (SGLT2 inhibitors) reduce sodium and glucose reabsorption in the proximal tubule, which lowers blood glucose and promotes diuresis. Empaglifozin has been shown to reduce all-cause mortality in patients with diabetes and high cardiovascular risk. SGLT2 inhibitors have also been shown to reduce admissions for heart failure,³ indicating a major role of diabetes in heart failure that appears to be independent of simply provoking myocardial infarction.

The Sir Derrick Melville Dunlop Lecture by Professor Anna Dominiczak (Regius Professor of Medicine, University of Glasgow) provided a fascinating insight into her discoveries in the field of hypertension, particularly relating to the genetics of blood pressure and the regulatory role of uromodulin.⁴ Precision medicine, combining data from the clinical presentation and medical imaging, as well as genomics, proteomics and metabolomics may lead to improved diagnostics and treatment. Professor Dominiczak is currently leading a precision medicine study to determine whether hypertensive patients with high uromodulin levels benefit from loop diuretics.

Session 3: Thrombus here, thrombus there, thrombus everywhere

Professor Menno Huisman (Professor of Thrombosis and Haemostasis, Leiden University Medical Centre, Leiden, The Netherlands) described the advantages of direct-acting oral anticoagulants (DOACs) over warfarin, including fixed dosing, with less need to monitor and greater efficacy for preventing stroke, whilst providing a lower risk of major bleeding. He highlighted the importance of following guidelines appropriately when deciding to prescribe low dosages of DOACs. In addition, he indicated that adherence to DOACs is still suboptimal and more research is needed to improve this.

Professor Stavros Konstantinides (Professor of Clinical Trials, Johannes Gutenberg University Mainz, Germany) discussed the importance of risk stratification in venous thromboembolism (VTE). Low-risk patients with VTE are now often managed as outpatients. However, intermediate and particularly intermediate–high risk patients need careful assessment (particularly right ventricular function) and often do not fit

neatly into an algorithm. Provoked VTE requires treatment for 3 months whereas unprovoked VTE requires at least 3 months treatment and there is also good evidence to support prolonged treatment with reduced dose DOAC.

Professor Robert Storey (Professor and Honorary Consultant in Cardiology, University of Sheffield) reviewed the cardiovascular benefit of ticagrelor compared to clopidogrel in patients with acute coronary syndromes (ACS) when used with aspirin. Although potent P2Y₁₂ inhibitors, such as ticagrelor, are associated with an increase in spontaneous bleeding, this is now relatively rare. Although bleeding is associated with an increased risk of early mortality, it is unclear how much of this is related to confounding factors. In the context of recent percutaneous coronary intervention, P2Y₁₂ inhibitors should generally only be discontinued if bleeding is life threatening.⁵

Session 4: Workshops

In the workshop sessions, new techniques and devices in cardiovascular therapeutics were explored by Dr Leong Lee (Consultant Interventional Cardiologist, Sandwell and West Birmingham NHS Trust) and new techniques and devices in monitoring patients were explained by Dr Derek Connelly (Consultant Cardiologist, Glasgow Royal Infirmary). Dr Stuart Watkins (Consultant Cardiologist, Golden Jubilee National Hospital, Glasgow) ran through the acute management of ACS in the emergency department and demonstrated the importance of re-assessing patients and ECGs over time, as well as using HEART and GRACE scores to help guide initial decision-making and timing of angiography.

Take home messages

In recent years, new treatment options have shown cardiovascular benefit for the treatment of heart failure (sacubitril/valsartan), hypercholesterolaemia and coronary artery disease (PCSK9 inhibitors) and diabetes (SGLT2 inhibitors). In addition, DOACs are now routinely used in the treatment of atrial fibrillation and VTE. The increasingly diverse range of available medications underlines the importance of a multidisciplinary approach to tackling cardiovascular disease.

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