



SYMPOSIUM
Online



ROYAL
COLLEGE of
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Contemporary and Futuristic Cardiology

Programme & Abstracts



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Thursday 28 October 2021

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Symposium organising committee

Dr Andrew Docherty (Chair)

Prof Ahmet Fuat

Dr Naveen Pereira

Dr Andrew Flapan (Symp Comm Rep)

Dr Javaid Iqbal

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Dr Claire Brough

Dr Narendra Kumar

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Dr Maysah Salman

Dr Kit Chan

Dr Doraiswan Vaidhyanathan

The Federation of the Royal Colleges of Physicians of the UK runs a Continuing Professional Development (CPD) Scheme for all post-training physicians. Please note it is your responsibility only to claim credits for the hours you attend.

CPD ID Code: 136028

CPD Credits: 6



CPD certificates and feedback

The CPD sign-in register is now online and is combined with the symposium feedback form.

- Please note that in order for us to issue CPD certificates, we require participants to complete our online feedback survey and you should have received an email containing a link to your individual feedback form. If you have not received this please contact: a.serelis@rcpe.ac.uk
- There is an option to save your feedback as you complete it during the day and finish your responses later. This is done through the 'Finish later' button which is at the bottom of every page of the survey.
- Please note that the 'Finish later' feature supplies you with an updated individual link which contains your previous answers. These are not accessible to our administration team so please ensure that you store this link as otherwise you will have to begin your survey again.
- The sign-in and feedback form will be open for 28 days after the event, **closing at midnight on 25 November 2021**. Electronic certificates will be issued shortly after that date via email. It will not be possible to issue certificates to delegates who do not complete the form by this date as it is your confirmation that you attended – so please make sure you do. Please note that it is not possible to download a certificate directly from the online feedback survey platform.

Asking questions and interactive sessions

- You can submit questions to the speakers during the talks using 'Slido.com' - we will be using interactive software, 'Slido', so that everyone can ask the speakers questions and participate in any polls and case discussions.
- On your mobile, tablet or computer, go to [slido.com](https://www.slido.com)
- Enter the event code: **#rcpeCardio21**
- This code will be used throughout the day for all presentations.
- When delegates send questions to speakers, your device will display the delegate questions.
- You can 'like' any delegate questions submitted, questions will rearrange based on how many 'likes' they have, highlighting to the Chair popular questions.
- Any questions not answered on the day will be responded to retrospectively and posted on <https://events.rcpe.ac.uk/events/symposia>.

Social media

The College encourages online discussion and the use of social media. Please feel free to participate – the Twitter hashtag for this event is **#rcpeCardio21**

You don't have to join Twitter to participate, anyone can access the tweets from the event, just type the event hashtag into the search bar of your browser and all tweets with the hashtag will be displayed. The College has its own Twitter account @RCPEdin and this is usually highly active during symposia and a useful summary of key messages from the day.

Symposium programme

Contemporary and Futuristic Cardiology

RCPE Online Symposium held on Thursday 28 October 2021

09.25 **Welcome**
Professor Andrew Elder, President, Royal College of Physicians of Edinburgh

Session 1: The final diagnosis and treatment may not be the most common

Chair: Dr Andrew Docherty, Chair of the Organising Committee, Consultant Cardiologist, Wishaw General Hospital

09.30 **Pulmonary hypertension: past, present and future**
Professor David Kiely, Director of the Sheffield Pulmonary Vascular Disease Unit and
Dr Alex Rothman, Wellcome Trust Clinical Research Career Development Fellow, Sheffield Pulmonary
Vascular Disease Unit
@Alex_Rothman
*right ventricular failure with and without pulmonary hypertension.

10.05 **Case presentation - Myocardial infarction with no obstructive coronary artery disease - pursuing the diagnosis**
Dr Robert Sykes, Clinical Research Fellow, University of Glasgow
@_RobSykes and @UofGICAMS
* right ventricular outflow tract ventricular tachycardia, myocardial infarction with non-obstructive coronary arteries (MINOCA) or is it something else?

10.40 **Break**

Session 2: Uncomfortable decision making in diagnostic and treatment uncertainty

Chair: Dr Lisa Anderson, Consultant in Heart Failure, St George's University Hospitals NHS Foundation Trust

11.00 **Mid-range left ventricular ejection fraction, to treat or not to treat?**
Dr Fozia Ahmed, Consultant Cardiologist, Manchester Royal Infirmary
* should you ignore, treat or randomize into a clinical trial?

11.35 **Cardiovascular effects of COVID19 – an update**
Professor Marc Dweck, Consultant Cardiologist, Royal Infirmary, Edinburgh
@MarkDweck
* what did COVID teach us about myocarditis? * how can this help us understand pathophysiology and treatment more widely?

12.10 **Case presentation - diabetic, mechanical valve, cerebral haemorrhage**
Dr Mohamed Anwar, Cardiology Registrar, Royal Infirmary Edinburgh
Expert Panel:
Dr Cara Hendry, Consultant Interventional Cardiologist, Central Manchester University Hospitals NHS
Foundation Trust, Manchester
@CaraCaraHendry
Dr Ashley Nisbet, Consultant Cardiologist & Electrophysiologist, University Hospitals Bristol NHS Trust
@DrAshNisbet
Dr Sowmya Venkatasubramanian, Consultant Cardiologist, Forth Valley Hospital, Larbert
* how do the experts balance risk and benefit high-stakes anticoagulation?

12.45 **Break/Lunch**

Symposium programme

Contemporary and Futuristic Cardiology

RCPE Online Symposium held on Thursday 28 October 2021

Session 3: Cutting-edge treatments within ethical boundaries

Chair: Dr Andrew Flapan, Consultant Cardiologist, Royal Infirmary, Edinburgh

13.30 DR GEORGE ALEXANDER GIBSON LECTURE

Chair: Professor Andrew Elder, President, Royal College of Physicians of Edinburgh

Congenital heart disease

Professor S Yen Ho, Consultant Cardiac Morphologist, Royal Brompton Hospital, London

14.15 Parallel Sessions:

Electrophysiology/devices workshop

Professor Dhiraj Gupta, Consultant Cardiologist, Liverpool Heart and Chest Hospital

* state of the update on new approaches in electrophysiology

Stroke intervention

Dr David Hargroves NHSE&I GIRFT National Lead for Stroke and the Clinical Lead for the Urgent and Emergency Care Work stream at NHSE&I

* how to deliver an effective stroke intervention service to your local population

Prehabilitation and cardiac rehabilitation

Professor Susan Dawkes, Professor of Nursing and Cardiovascular Health, Robert Gordon University, Aberdeen

@SusanDawkes

* your intervention improved 30 day survival, we will give them the rest of their life

15.05 Break

Session 4: Personalised medicine in a virtual world

Chair: Professor Adrian Brady, Consultant Cardiologist, Glasgow Royal Infirmary

15.25 Virtual consulting room and telemedicine

Dr Paul Friedman, Professor of Medicine and Chair of the Department of Cardiovascular Medicine, Mayo Clinic, Rochester, USA

@DrPaulFriedman

* estimate potassium level and left ventricular ejection fraction from an ECG * remote QTc monitoring

16.00 Personalised medicine – genetics in heart disease

Professor Naveen Pereira, Consultant, Mayo Clinic, Rochester, USA

@MayoClinicCV

* how I really use genetics in my clinic

16.35 Close

Symposium abstracts

Session 1 – The final diagnoses and treatment may not be the most common

Pulmonary hypertension: past, present and future

Professor David Kiely, *Director of the Sheffield Pulmonary Vascular Disease Unit* and Dr Alex Rothman, *Wellcome Trust Clinical Research Career Development Fellow*, Sheffield Pulmonary Vascular Disease Unit

Professor Kiely will cover current clinical practice and how we use MRI. Dr Rothman will cover the development of a remote monitoring service for patients with pulmonary hypertension where clinically approved medical devices have been used to measure haemodynamic and activity parameters with hard relationships to mortality to permit treatment of patients from their own homes during the COVID-19 pandemic.

Case presentation: myocardial infarction with no obstructive coronary artery disease – pursuing the diagnosis

Dr Robert Sykes, *Clinical Research Fellow*, University of Glasgow

Myocardial infarction with nonobstructive coronary arteries (MINOCA) is a common working diagnosis in patients presenting with acute coronary syndrome. Outcomes and prognoses are impaired compared with the general population, and comparable with patients who have obstructive coronary artery disease.

A stratified approach to diagnosis and individualised management are important in this patient group. Adjunctive testing, invasive and non-invasive, but in particular, cardiac magnetic resonance imaging is required to elucidate the aetiology of event. Atherosclerotic plaque rupture and erosion is a prevalent cause of transient thrombosis or embolisation in patients with MINOCA, despite no culprit lesion on initial angiography. Current management relies on empirical standardised practice, and aggressive secondary prevention strategies are encouraged. Randomised trials are in progress, but further trials will be required to establish an evidence-based approach to management in this heterogenous group of patients with MINOCA.

Session 2 - Uncomfortable decision making in diagnostic and treatment uncertainty

Mid-range left ventricular ejection fraction – to treat or not to treat?

Dr Fozia Ahmed, *Consultant Cardiologist*, Manchester Royal Infirmary

Despite notable advances in drugs and therapeutic devices used to treat patients with heart failure (HF) and significantly

reduced ejection fraction, therapeutic options for HF patients with mildly reduced ejection fraction (HFmrEF) have lagged behind. Although there are many reasons why this may be the case, under-representation in clinical trials and a paucity of primary data to support outcomes benefits in this population are implicated.

Until recently, despite poor outcomes in this population, HFmrEF remained an area of primary research. However, sub-group and post-hoc analyses of landmark randomised controlled trials in HF provide new data, indicating that the same medications used to treat patients with more significantly reduced ejection fraction may also confer prognostic benefit to patients with HFmrEF.

This presentation considers this new data in HFmrEF, the 2021 ESC HF guideline recommendations, and considers whether the new pooled, post-hoc data should be considered sufficient to change clinical practice, or whether we should look to enrol patients with HFmrEF into dedicated clinical trials. !

Cardiovascular effects of COVID-19 – an update

Professor Marc Dweck, *Consultant Cardiologist*, Royal Infirmary of Edinburgh

This talk will focus on how COVID-19 can affect the heart, covering three key aspects

- i) Myocardial damage observed in patients hospitalised with COVID-19. This appears relatively common and attributable to both the acute effects of COVID-19 and pre-existing cardiac comorbidities.
- ii) Myocardial damage in patients that have recovered from COVID-19. Most patients that have recovered from severe COVID-19 demonstrate good cardiac function. However some evidence of scarring is found relatively frequently that again represents a mixture of direct COVID-19 effects and disease related to cardiovascular comorbidities.
- iii) Myocardial damage related to vaccination. This is a very rare complication of vaccination and frequently associated with a mild disease course.

Case presentation: diabetic, mechanical valve, cerebral haemorrhage

Dr Mohamed Anwar, *Cardiology Registrar*, Royal Infirmary of Edinburgh

I present a case of a patient with a mechanical mitral valve and cerebral haemorrhage. This is a complex area with no randomised controlled trials to guide our judgements; individual patient's factors may substantially change the bleeding and thrombotic risk. Balancing these competing risks of bleeding vs thrombosis in this high stakes scenario

is the sharp end of cardio-neurology! A multidisciplinary approach is essential.

Session 3 - Cutting-edge treatments within ethical boundaries

Congenital heart disease

Professor S Yen Ho, *Consultant Cardiac Morphologist*, Royal Brompton Hospital, London

This talk is a snapshot of my journey from 1975 through the morphology of congenital heart defects, learning as I go, starting with the patent ductus arteriosus. The relevance of morphology to imaging in diagnosis and interventions continues to this day despite the increasingly sophisticated imaging and integrated imaging modalities that can be achieved ever more swiftly. Knowing the location and courses of the cardiac conduction system in heart malformations has made surgical repair in these patients safer from inadvertent damage. Nevertheless, surgical scars and overload in a chamber result in tissue scarring and histologic alterations in the myocardium that can lead to functional decline and/or onset of arrhythmias. The validation of LGE-CMR imaging to image scarred areas, and integration imaging with arrhythmia mapping is particularly useful in a personalised approach to treating the arrhythmias in these patients.¹ Further, the scar burden may help predict inducibility of ventricular tachycardia in patients. As for the future, the role of morphology remains as part of multidisciplinary teams in developing new strategies for care of patients with congenital heart defects as well as patients with acquired heart disease.

Reference

- 1 Ghonim S, Ernst S, Keegan J et al. Three-Dimensional Late Gadolinium Enhancement Cardiovascular Magnetic Resonance Predicts Inducibility of Ventricular Tachycardia in Adults With Repaired Tetralogy of Fallot. *Circ Arrhythm Electrophysiol* 2020;13: e008321

Stroke intervention

Dr David Hargroves, *NHSE&I GIRFT National Lead for Stroke and the Clinical Lead for the Urgent and Emergency Care Work stream at NHSE&I*

Over 10,000 individuals have a stroke each year in Scotland, and there are over 1.3 million stroke survivors in the UK with annual societal costs of £25.6 billion.¹ The mortality from stroke has diminished by 60% over the last few decades although is still over 30% at 30 days, with Scotland unfortunately the highest in the UK.

The natural history for patients with ischaemic stroke secondary to occlusion of a proximal intracranial vessel (LVO) is poor, with only 10% of patients with a National Institutes for Health stroke scale (NIHSS) score of > 20/42 achieving independence at three months. Intravenous (IV) alteplase

has been the mainstay of acute stroke treatment; however only 29% of proximal middle cerebral artery occlusions achieve complete recanalisation.

Mechanical thrombectomy (MT) clearly shows superior clinical outcomes over best medical therapy, including use of IV alteplase, with a number needed to treat of 2.6 to improve function. This treatment is time-dependent with the benefit of MT diminishing by 3.4% every hour elapsed from symptom onset.

There is limited availability of MT across the UK, with 1,800 patients receiving MT in England and 15 in Scotland in the last year. A National Stroke Service Model in England sets out ambitions to transform MT delivery.²

The Scottish Thrombectomy Advisory Group (TAG), is planning on starting a 3-site service (based from Glasgow/Edinburgh/Dundee) and expecting to carry out over 800 thrombectomies each year across Scotland; a pilot thrombectomy service started in November 2020 at Ninewells Hospital under the guidance of an experienced interventional neuroradiologist.³ This talk will discuss the potential role of cardiologists in this national priority.

References

- 1 Patel A, Berdunov V, Quayyum Z, et al. Estimated societal costs of stroke in the UK based on a discrete event simulation. *Age Ageing* 2020; 49: 270–6.
- 2 <https://www.england.nhs.uk/wp-content/uploads/2021/05/national-stroke-service-model-integrated-stroke-delivery-networks-may-2021.pdf>
- 3 <https://publichealthscotland.scot/media/8177/scottish-stroke-improvement-programme-full-report.pdf>

Prehabilitation and cardiac rehabilitation

Professor Susan Dawkes, *Professor of Nursing and Cardiovascular Health*, Robert Gordon University, Aberdeen

Cardiac rehabilitation is an evidence-based intervention which reduces mortality, morbidity and improves patients' quality of life but of those people who are eligible for cardiac rehabilitation, more than half do not attend. Cardiac rehabilitation consists of six core components: health behaviour change and education; psychosocial health; medical risk management, lifestyle risk factor management; long-term strategies and audit and evaluation. All the core components should be offered to patients by a multidisciplinary team. It is essential that patients have a comprehensive initial assessment to determine their rehabilitation requirements and with a healthcare professional, they form an action plan. The focus should be on the development of effective self-management strategies. To increase participation, cardiac rehabilitation programmes need to ensure an individualised approach focussing on what matters to the patient and offering a choice of how rehabilitation is delivered, suited to the needs and wishes of each patient. Newer technologies should be embraced while gathering evidence of their

effectiveness. It is essential that the whole team advocates for cardiac rehabilitation to ensure patients are afforded the best possible health and wellbeing. It is essential that cardiac rehabilitation services modernise and become more inclusive of all people who would benefit.

Session 4 - Personalised medicine in a virtual world

Virtual consulting room and telemedicine

Dr Paul Friedman, *Professor of Medicine and Chair of the Department of Cardiovascular Medicine*, Mayo Clinic, Rochester, USA

Artificial intelligence (AI) has given the electrocardiogram (ECG) and clinicians reading them, super-human diagnostic abilities. Trained without hard-coded rules by finding often subclinical patterns in huge datasets, AI transforms the ECG, a ubiquitous, non-invasive cardiac test that is integrated into practice workflows, into a screening tool and predictor of cardiac and non-cardiac diseases, often in asymptomatic individuals.

This review describes the mathematical background behind supervised AI algorithms, and discusses selected AI ECG cardiac screening algorithms, including those for the detection of left ventricular dysfunction, episodic atrial fibrillation from a tracing recorded during normal sinus rhythm, and other structural and valvular diseases. The ability to learn from big datasets, without the need to understand the biological mechanism, has created opportunities for detecting non-cardiac diseases such as COVID-19 and introduced challenges with regards to data privacy. Like all medical tests, the AI ECG must be carefully vetted and validated in real-world clinical environments.

Finally, with mobile form factors that allow acquisition of medical-grade ECGs from smartphones and wearables, the use of AI may enable massive scalability to democratise healthcare.

Further reading

- Attia ZI, Harmon DM, Behr ER et al. Application of artificial intelligence to the electrocardiogram. *Europ Heart J* 2021; <https://doi.org/10.1093/eurheartj/ehab649>
- Attia ZI, Noseworthy PA, Lopez-Jimenez F et al. An artificial intelligence-enabled ECG algorithm for the identification of patients with atrial fibrillation during sinus rhythm: a retrospective analysis of outcome prediction. *Lancet* 2019; 394: 861–7.
- Yao X, Rushlow DR, Inselman JW et al. Artificial intelligence-enabled electrocardiograms for identification of patients with low ejection fraction: a pragmatic, randomized clinical trial. *Nat Med*. 2021;27: 815– 9.

Personalised medicine – genetics in heart disease

Professor Naveen Pereira, *Consultant*, Mayo Clinic, Rochester, USA

Heart disease may have genetic predisposition. Dilated and hypertrophic cardiomyopathy are examples of Mendelian gene disorders, and diagnosis of these genetic causes has considerably improved. Family history may not indicate genetic aetiology of heart disease, therefore in many instances genetic testing should be performed and, given significant genetic heterogeneity, screening for heart disease should include broad gene panels. Genetic testing, by providing insight into the aetiology of heart disease, may also change treatment recommendations. In addition, response to drug therapy used in heart disease may be genetically mediated and may help guide the right drug to the right patient. Gene-based therapy is being actively investigated in heart disease and may revolutionise treatment.



Upcoming Events 2021-22

The Royal College of Physicians of Edinburgh education programme continues with:

Wed 03 Nov	Symposium: Neurology	Thu 18 Nov	Symposium: Gastroenterology
Tue 09 Nov	Course: An introduction to clinical research including critical appraisal	Tue 23 Nov	EMU: Updates in Oncology
Wed 10 Nov	UKMU: RCPE Mersey & North Western England: Updates in Clinical Medicine	Thu 25 - Fri 26 Nov	Symposium: 61st St Andrew's Day Festival: Updates on Acute Medicine
Thu 11 Nov	Course: Systematic review and meta-analysis workshop	Tue 30 Nov	RCPE Iraq: Updates in Clinical Medicine
Fri 12 Nov	Course: Obstructive Sleep Apnoea (OSA) & Non-Invasive Ventilation (NIV) – Part 2	Thu 02 Dec	Course: The Power of Apology: Early resolution skills for healthcare professionals
Tue 16 Nov	Evening Meeting: Embracing the digital world – getting the most out of it as clinicians	Tue 14 Dec	EMU: Working within a Team

To book, or for more information on our events, visit: events.rcpe.ac.uk

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Not able to attend?

Material from these events is available to Fellows, Members and Associates on the College's Online Education Portal, along with accredited specialty modules.