ACUTE KIDNEY INJURY – CLINICAL

EFFECT OF REMOTE ISCHEMIC PRECONDITIONING ON AKI INCIDENCE AND OUTCOMES FOLLOWING CARDIAC SURGERY: RESULTS OF A MULTI-CENTRE RANDOMISED CONTROLLED TRIAL

Chris Laing1, Luciano Candilio2, Richard Evans3, David P Jenkins4, Shyam Kolvelkar2, Rosemary Knight3, Gudrun Kunst6, Jennifer Nicholas3, John Pepper7, Andrew Ritchie8, Steven Robertson3, Maria Xenou5, Tim Clayton3, Derek M Yellon9 and Derek J Hausenloy9

1Royal Free London NHS Foundation Trust/UCL, Nephrology, London, United Kingdom, 2University College London, Institute of Cardiovascular Science, London, United Kingdom, 3London School of Hygiene and Tropical Medicine, Clinical Trials Unit, London, United Kingdom, 4Papworth Hospital, Cardiothoracic Surgery, Cambridge, United Kingdom, 5University College London Hospitals, Cardiothoracic Surgery, London, United Kingdom, 6Kings College Hospital, Cardiac Anaesthesia, London, United Kingdom, 7Royal Brompton and Harefield NHS Foundation Trust, Cardiac Anaesthesia, London, United Kingdom, 8Essex Cardiothoracic Centre, Cardiothoracic Surgery, Basildon, United Kingdom, 9University College London, Hatter Cardiovascular Institute, London, United Kingdom

Introduction and Aims: Acute Kidney Injury (AKI) following cardiac surgery is associated with adverse outcomes. Novel therapies are required to reduce the development of AKI in this context. Remote ischemic preconditioning (RIPC) - in which nonlethal ischemia applied to an organ or tissue protects another organ or tissue as an adaptive response - is a promising renoprotective intervention. We have investigated the effect of RIPC on renal outcomes as part of the Effect of Remote Ischaemic preConditioning on clinical outcomes in patients undergoing Coronary Artery bypass graft surgery (ERICCA) study.

Methods: This was a large, multi-centre, randomised controlled study to investigate the effects of RIPC on outcomes in higher risk patients undergoing on-pump CABG (+/- valve) surgery. Patients were randomised to receive either RIPC four x 5 minute inflations/deflations of a cuff placed on the upper arm or control (a sham RIPC protocol) following anesthesia but prior to surgical incision.

Results: We recruited 1612 patients (original target 1610) in 28 UK sites. By March 2015 all patients will have completed 12 months of follow up. We will present renal outcome data on postoperative AKI incidence, severity and changes in serum Neutrophil Gelatinase Associated Lipocalcin (NGAL) as well as renal function at 12 months.

Conclusions: The ERICCA study should establish whether RIPC - a simple, low-cost, pre-operative intervention - can reduce AKI incidence, severity and longer term renal outcomes in higher risk patients undergoing CABG (+/- valve) surgery.