

Renal medicine in the ‘real world’

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INTRODUCTION

Renal disease is common, and yet can be very challenging to diagnose and manage with confidence. This symposium attracted delegates from a wide range of specialties and aimed to provide a forum for discussion of current research in nephrology with a strong emphasis on overcoming the challenges faced in day-to-day practice.

SESSION ONE: MANAGEMENT OF ACUTE KIDNEY INJURY

Dr John Firth (Consultant Physician and Nephrologist, Addenbrooke's Hospital, Cambridge) set the scene with an overview of acute kidney injury (AKI), with reference to the recent (NCEPOD) enquiry into the care of hospital patients who died of AKI.¹ He highlighted the startling finding that 22% of deaths due to AKI in hospital could have been predicted and prevented. It is important to recognise risk factors for AKI, including advanced age, diabetes and pre-existing chronic kidney disease (CKD), and to take a thorough drug history. Nephrotoxins should be stopped, fluid balance assessment is vital to guide fluid management, and regular reassessment is key.

Professor Peter Maxwell (Professor of Nephrology, Queen's University Belfast and Honorary Consultant Nephrologist) focused on hyperkalaemia. This is found in up to 10% of hospitalised patients, and carries a risk of arrhythmia and cardiac arrest. Surprisingly, evidence for the emergency treatment of hyperkalaemia is lacking.² Intravenous calcium should be administered to stabilise the cardiac membrane resting potential and prevent arrhythmias, although its mechanism remains unclear. Nebulised beta agonist should be given concomitantly with intravenous insulin and dextrose to stimulate the intracellular uptake of potassium. Potassium-sparing drugs should be stopped, and dietary potassium restricted. In order to prevent drug errors in an emergency, such as insulin overdose, education and assessment of medical students and junior doctors are recommended.

Mr Ben Thomas (Consultant Urological Surgeon, NHS Lothian & NHS Borders) discussed urinary tract obstruction, a common cause of AKI. Lower urinary

tract obstruction can usually be relieved by urinary catheterisation, whereas upper urinary tract obstruction requires specialist input. Causes can be either intrinsic, for example stone disease, or extrinsic, such as malignancy. The choice of urological intervention depends on several factors. Nephrostomy insertion can be performed under local anaesthetic, but requires normal coagulation, can be challenging in obese patients, and depends upon the availability of interventional radiology. Ureteric stent insertion is performed by a urologist, is less affected by high body mass index, but requires a general anaesthetic. Urgent intervention can be required if there is worsening AKI or sepsis, and non-dilated obstruction should still be considered if there is a high clinical suspicion despite normal imaging. Relief of obstruction may lead to large volume diuresis and patients require regular monitoring of fluid balance and electrolytes.

SESSION TWO: RENAL REPLACEMENT THERAPY IN OLDER PEOPLE

Professor Ken Farrington (Consultant Nephrologist, Lister Hospital, Stevenage) considered the complexity of management of elderly patients with end-stage renal disease. The overall predicted five-year survival of patients on dialysis is less than some malignancies, but patients commencing dialysis aged 75 or over have a particularly poor prognosis, with a median survival of less than two years. Although dialysis does improve survival in patients over age 75, this benefit is lost in patients with high co-morbidity.³ In addition, subjective quality of life in the frail elderly population can decline after dialysis initiation. For those patients who deteriorate despite dialysis, it is important to consider a shift towards supportive or palliative care.

A total of 50% of patients starting dialysis in the UK are aged over 60. Professor John Forsythe (Consultant Transplant Surgeon, Royal Infirmary of Edinburgh) discussed the challenges of transplantation in older patients. Unsurprisingly, they have higher co-morbidity, and assessment of fitness for transplantation can be difficult. Half of patients over the age of 60 who are on the transplant list die before a graft becomes available. However, life expectancy in this age group does improve

with transplantation. In the United States, patients can now opt in to be listed for extended criteria donor (ECD) transplant. In the elderly population, an ECD kidney (available on average two years before standard criteria donor kidney) confers survival advantage,⁴ and improves quality of life. Overall, decision-making can be difficult and should be considered on an individual basis.

SESSION THREE: DIFFICULT CASES

Professor Neil Turner (Professor of Nephrology, University of Edinburgh) and Dr Jennifer Lees (ST2 Doctor in Renal Medicine, Royal Infirmary of Edinburgh) presented an interactive session of challenging clinical cases. Referrals from the obstetric unit, in particular, can be difficult for nephrologists, and the cases presented prompted discussion about differentiating pre-existing renal disease in pregnancy from pre-eclampsia in patients with hypertension, proteinuria and renal impairment. Ultrasound of the placenta is key if pre-eclampsia is suspected. Timing can be indicative, as pre-eclampsia manifests later in pregnancy, whereas pre-existing renal disease may be detected at an early stage, with urinary abnormalities or renal dysfunction on routine testing. Blood pressure control in pregnant patients with CKD is less strict, as there is no evidence that tight control improves outcome. The aim is to optimise placental perfusion to aid fetal growth, and minimise fetal drug exposure. Patients should be monitored closely in clinic.

Dr Patrick Mark (Senior Lecturer and Honorary Consultant Nephrologist, University of Glasgow) described the classification of cardio-renal syndrome (CRS) into types I to V, according to the primary organ dysfunction, pathophysiology and chronicity. He highlighted the similar risk factors for both renal and cardiac failure, as well as shared pathogenesis. The classification itself can be confusing, and this has highlighted the need for prospective studies to generate

an evidence base to guide treatment. Diuretic therapy, and, in particular, diuretic resistance, is one important area of ongoing study. High divided doses of loop diuretic are as effective as continuous infusions⁵ and are thought to prevent rebound sodium retention. The addition of a thiazide, although effective, can lead to hazardous hypokalaemia.

SESSION FOUR: STANLEY DAVIDSON LECTURE

Professor Tim Goodship (Professor of Renal Medicine, University of Newcastle upon Tyne) described recent research into atypical haemolytic uraemic syndrome (aHUS). Haemolytic uraemic syndrome is a triad of microangiopathic haemolytic anaemia, thrombocytopenia and AKI. Typically, HUS (90% of cases) occurs after enterohaemorrhagic *E. coli* infection, whereas aHUS (10%) can be either sporadic or familial. Inherited or acquired abnormalities of the complement system have been found in up to 70% of patients with aHUS. However, not every patient with the described mutations has the disease phenotype – there has to be a trigger such as pregnancy or sepsis. The management of aHUS is challenging – the prognosis is poor with the majority developing end-stage renal failure, and unfortunately recurrence of aHUS in renal transplant is common. The mainstay of treatment to date has been plasma exchange, with variable efficacy. A new potential therapy is eculizumab, a complement inhibitor. Results have been promising, but at the moment its cost is often prohibitive.

TAKE-HOME MESSAGE

Renal medicine in the 'real world' offered an opportunity to share experience and opinion, in light of recent evidence, to guide practical approaches to the management of renal disease. The talks were thought-provoking, relevant to our daily practice, and stimulated much discussion.

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