RCPE symposium – Renal medicine

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Introduction

Nephrology has entered an exciting era with new therapies being developed for conditions which can be challenging to treat. This year's symposium brought together old pathologies with new treatment strategies, and urged the audience to consider how we should investigate and apply novel therapeutics in the future.

Session 1 – Glomerular disease: Keeping it renal

Two cases and accompanying histopathology provided a backdrop to a discussion on recently published evidence on the management of glomerular disease.

The cases, presented by Dr Alistair Rankin and Dr Jack Fairweather (Glasgow), comprised challenging examples of IgA nephropathy and primary focal segmental glomerulosclerosis, with biopsies described by Dr Shana Coley (Glasgow).

Recent trials into immunological therapy for IgA nephropathy were presented by Professor Jonathan Barratt (Leicester). Two trials of glucocorticoid therapy showed no benefit,[1] with one halted early due to adverse effects. Novel methods of steroid delivery might improve efficacy, as suggested in the NEFIGAN study of targeted release budesonide. Rituximab has been found to be ineffective in IgA nephropathy, but a range of other B cell targeted treatments are under investigation.

A comprehensive review of B cell therapy in glomerular disease was given by Professor Lorraine Harper (Birmingham). In anti-neutrophil cytoplasmic autoantibody associated vasculitis, rituximab has equal efficacy to cyclophosphamide at obtaining remission and preventing relapse. A recent trial of lower dose rituximab as maintenance immunosuppression found a significantly reduced rate of relapse in comparison to azathioprine with no difference in adverse events.[2]

Session 2 – Challenges in transplantation and proteinuria

Professor Nick Torpey (Cambridge) opened the second session with a review of immunological evaluation in renal transplant recipients. Solid phase assays for human leukocyte antigen (HLA) antibodies, such as Luminex, are now the cornerstone of immunological assessment, facilitating detection of pre-formed antibodies which react with donor HLA and lead to transplant rejection. This enables virtual cross matching, whereby donor HLA type is compared with recipient sensitisation to allow appropriate and expeditious organ allocation.

Professor Neil Turner (Edinburgh) took us back to the 19th century when proteinuria was first identified as a marker of poor outcome. This was reflected in the Framingham Offspring Study: those with renal impairment and proteinuria had four times higher mortality, with most deaths occurring from non-renal causes prior to the onset of end stage renal disease.

Session 3 – An update on diabetic kidney disease

Dr Bryan Conway (Edinburgh) showed that numerous susceptibility loci for renal impairment in diabetes have been identified via genome wide association studies, and transcriptomic techniques allow evaluation of gene

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expression in single glomeruli. Putative culprit molecules identified can then be studied further in rat models.

Professor Hiddo Lambers Heerspink (Groningen, the Netherlands) challenged us to conduct better clinical trials. Despite the many new therapies in diabetes that have been studied, only empagliflozin has shown additive benefit over renin angiotensin inhibitors to improve cardiovascular outcome.[3]

Individualisation of study interventions based on genetic and personal factors may help identify efficacious treatments. For example, in the RENAAL study of losartan in diabetic nephropathy, those with the DD genotype of ACE polymorphism showed greatest response.[4] In the BEACON study, if patients with heart failure were excluded from analysis, bardoxolone was shown to reduce progression to end stage renal disease.

The session was concluded by a discussion of emerging therapies for type 2 diabetes by Dr Alan Jaap (Edinburgh). The role of emerging therapies such as DPP4 inhibitors, GLP-1 agonists and SGLT2 inhibitors is becoming better defined, and the cardiovascular benefits of these medications may be significant.

Session 4 – Acute kidney injury for the non-nephrologist

The final session of the day was opened by Professor Christopher Winearls (Oxford) who reviewed paraprotein-related kidney disease. In myeloma, free light chains form tubular casts which can cause severe and irreversible acute kidney injury (AKI), and given that recovery of renal function doubles survival, focus should be on early treatment of dehydration, avoidance of diuretics and non-steroidal anti-inflammatory drugs, and correction of acidosis and hypercalcaemia. Disease specific therapy including steroids and bortezomib should also be commenced promptly. Studies of high cut off haemodialysis which may reduce serum light chains are soon to be published.

Dr Samira Bell (Dundee) concluded the symposium with a perspective on big data approaches to AKI. Large datasets of patients in the community and undergoing elective surgery have been used to derive predictive models of AKI.[5] Such an approach may help develop methods which identify vulnerable populations who require closer monitoring during periods of illness.

Take home message

Personally, I felt more confident in managing common clinical situations in glomerular disease and myeloma, and more familiar with novel therapies in diabetes. Moreover, after witnessing the diversity and activity of research in nephrology, I was inspired to further my own clinical and academic pursuits.

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