

Professor Lorraine Harper PhD, MRCP

Professor of Nephrology

School of Immunity and Infection

Contact details

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About

Lorraine Harper is Professor of Nephrology.

Lorraine has published over 70 research papers in scientific journals as well as reviews and book chapters in the fields of inflammation and nephrology. She has received major grants from Kidney Research UK and the Medical Research Council.

She is a strong supporter of academic training supporting the development of the integrated academic training pathway for junior clinical researchers in Birmingham and is extensively involved in delivery of the Medical School undergraduate curriculum.

She is an enthusiastic communicator on the theme of translational renal research and gives frequent talks to various groups at both the local and national level.

Qualifications

- PhD Medicine 2000
- Membership to the Royal College of Physicians 1993
- MBChB 1990

Biography

Lorraine Harper qualified in Medicine from the University of Edinburgh in 1990. She developed a clinical interest in inflammatory renal disease and was awarded a PhD in Medicine from the University of Birmingham in 2000. She completed her clinical training in nephrology in Birmingham in 2000. She has since gone on to develop a clinical research programme themed on better understanding of the pathogenesis and treatment of ANCA-associated vasculitis. Further training in clinical trials and translational research included a fellowship with the Immune Tolerance Network funded by the National Institute of Health. She was appointed as Professor of Nephrology in October 2010.

As Head of Clinical Academic Training within the College of Medical and Dental Sciences, Lorraine has been key to the successful increase in clinical academic training posts funded by the NIHR. She has successfully implemented structures to improve the governance of academic training, developed an MRes for junior clinical academics and infrastructure support for clinical fellowships. She is involved in academic career development for medical students.

Lorraine is an enthusiastic teacher and is extensively involved in delivery of the curriculum to medical students providing lectures and small group teaching in basic science and clinical nephrology. Lorraine provides research training to both undergraduates in the BmedSci and MBChB programme and has extensive experience in the supervision of PhD students both clinical and non-clinical.

Teaching

Teaching Programmes

[MBChB \(/undergraduate/courses/med/medicine.aspx\)](#)

[BMedSci \(/undergraduate/courses/med/medical-sci.aspx\)](#)

Postgraduate supervision

Lorraine is interested in supervising doctoral research students in the following areas:

- Genetic predictors of outcome in ANCA associated vasculitis
- Role of BlyS in ANCA-associated vasculitis
- Investigation of factors determining fatigue in ANCA associated vasculitis
- Predictors of secondary immunodeficiency in ANCA associated vasculitis
- The role of glomerular podocytes in the regulating platelet and leukocyte recruitment to glomerular endothelial cells

If you are interesting in studying any of these subject areas please contact Lorraine on the contact details above, or for any general doctoral research enquiries, please email: [dr@contacts.bham.ac.uk \(mailto:dr@contacts.bham.ac.uk\)](mailto:dr@contacts.bham.ac.uk) or call +44 (0)121 414 5005.

For a full list of available Doctoral Research opportunities, please visit our **[Doctoral Research programme listings \(http://www.bham.findaphd.com/?es=y&apl=y&aplt=&show\)](http://www.bham.findaphd.com/?es=y&apl=y&aplt=&show)**.

Research

RESEARCH THEMES

ANCA-Associated Vasculitis, Clinical Trials, Secondary Immunodeficiency, Autoimmune disease

RESEARCH ACTIVITY

The group has been at the forefront of research defining the molecular pathogenesis of vasculitis with a particular emphasis on the role of pathogenic autoantibodies.

Our group has identified how autoantibodies against neutrophil cytoplasm components develop in patients with vasculitis, bind to neutrophil membrane components and trigger signal transduction pathways that lead to aberrant neutrophil activation. We have shown that the local inflammatory milieu is important in attracting and priming neutrophils for activation by ANCA. This is relevant to pathogenesis because accumulating evidence from our clinical studies, in vitro models and animal models, indicates that the aberrant autoantibody-driven neutrophil activation leads directly to initiation of endothelial and vascular damage. The impact of dysregulated neutrophil activation on effector responses is investigated in vitro using models of neutrophil-endothelial cell interactions under flow and intravital microscopy, while effects on the kidney glomerular and interstitial environment is studied using multi-staining immunohistochemistry and confocal microscopy in association with in vitro responses of isolated, cultured glomerular and tubular cells.

Our clinical research is designed to improve the long term survival of these patients by reducing disease and treatment associated morbidity and mortality by understanding the way that both the disease and its treatment affect the immune system. Clinical trials in collaboration with the European Vasculitis Study Group (EUVAS) have focused on optimising the short to medium term use of intensive immunosuppression for acute disease.

Clinical studies have targeted the adverse events, especially infection, associated with long term immunosuppressant use by identifying predictors of infection, investigating the role of secondary immunodeficiency, and investigating vaccine responses. We are also interested in the way that chronic viral infections modulate immune responses. Our studies suggest that CMV infection, probably in combination with immunosuppression, leads to profound changes in the T cell repertoire conferring an increased risk of infection and mortality which may be amenable to pharmacological intervention. We have recently demonstrated that cardiovascular disease risk is also significantly increased in vasculitis patients and we are examining the inflammatory mechanisms underpinning this with a view to introducing new risk reduction treatments. Improving quality of life for patients with chronic inflammatory and renal disease is also important to us and we are currently investigating the factors underlying the severe chronic fatigue experienced by many patients.

Other activities

- Honorary contract UHB NHS Foundation Trust
- Member of European Vasculitis Study Group
- Member Regional Training Committee -Specialty Advisor for academia
- UKKRC academic representative for Birmingham research network
- Renal Speciality Lead Birmingham and Black Country CLRN
- External Grant Panel for Kidney Research UK
- External Grant reviewer for Wellcome Trust
- Honorary Secretary Renal Association 2008-2012

Publications

Suppiah R, Judge A, Batra R, Flossmann O, Harper L, Hoglund P, et al. A model to predict cardiovascular events in patients with newly diagnosed Wegener's granulomatosis and microscopic polyangiitis. *Arthritis Care Res* Jan 14 2011 (Epub ahead of print)

Morgan MD, Pachnio A, Begum J, Roberts D, Rasmussen N, Neil D, Bajema I, Savage CO, Moss PA, Harper L. CD4+CD28- T-cell expansion in Wegener's granulomatosis is driven by latent CMV and is associated with an increased risk of infection and mortality. *Arthritis Rheum* (in press)

Arning L, Holle JU, Harper L, Millar DS, Gross WL, Epplen JT, et al. Are there specific genetic risk factors for the different forms of ANCA-associated vasculitis? *Ann Rheum Dis*. 2011;70:707-8

RP, Savage CO, et al. Does immunosuppressant medication lower blood pressure and arterial stiffness in patients with chronic kidney disease? An observational study. *Hypertens Res*. 2011;34:113-9

Flossmann O, Berden A, de Groot K, Hagen C, Harper L, Heijl C, et al. Long-term patient survival in ANCA-associated vasculitis. *Ann Rheum Dis*. 2011;70:488-94

Hiemstra TF, Walsh M, Mahr A, Savage CO, de Groot K, Harper L, et al. Mycophenolate Mofetil vs Azathioprine for Remission Maintenance in Antineutrophil Cytoplasmic Antibody-Associated Vasculitis: A Randomized Controlled Trial. *JAMA* 2010;304:2381-8

Morgan MD, Drayson MT, Savage CO, Harper L. Addition of Infliximab to Standard Therapy for ANCA-Associated Vasculitis. *Nephron Clin Pract*. Aug 6;117(2):c89-c97.

Wieczorek S, Holle JU, Bremer JP, Wibisono D, Moosig F, Fricke H, et al. Contrasting association of a non-synonymous leptin receptor gene polymorphism with Wegener's granulomatosis and Churg-Strauss syndrome. *Rheumatology (Oxford)*. 2010;49:907-14

