# Preventing kidney transplant failure by screening for antibodies against human leucocyte antigens followed by optimised immunosuppression: OuTSMART RCT

Dominic Stringer,[1,2] Leanne Gardner,[2,3] Olivia Shaw,[4] Brendan Clarke,[5] David Briggs,[6] Judith Worthington,[7] Matthew Buckland,[8] Rachel Hilton,[9] Michael Picton,[10] Raj Thuraisingham,[11] Richard Borrows,[12] Richard Baker,[13] Rose Tinch-Taylor,[1,2] Robert Horne,[14] Paul McCrone,[2,15] Joanna Kelly,[2] Caroline Murphy,[2] Janet Peacock[16,17] and Anthony Dorling[3*]

[1]Biostatistics and Health Informatics, The Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK
[2]King's Clinical Trials Unit, King's College London, London, UK
[3]Centre for Nephrology, Urology and Transplantation, Department of Inflammation Biology, King's College London, Guy's Hospital, London, UK
[4]Clinical Transplantation Laboratory, Viapath Analytics LLP, London, UK
[5]Transplant Immunology, St James's University Hospital, Leeds, UK
[6]NHSBT Birmingham, Birmingham, UK
[7]Transplantation Laboratory, Manchester Royal Infirmary, Manchester, UK
[8]Clinical Transplantation Laboratory, The Royal London Hospital, London, UK
[9]Department of Nephrology and Transplantation, Guy's Hospital, London, UK
[10]Department of Renal Medicine, Manchester Royal Infirmary, Manchester, UK
[11]Department of Renal Medicine and Transplantation, Barts Health NHS Trust, London, UK
[12]Renal Unit, University Hospital Birmingham, Birmingham, UK
[13]Renal Unit, St James's University Hospital, Leeds, UK
[14]Centre for Behavioural Medicine, UCL School of Pharmacy, University College London, London, UK
[15]Faculty of Education, Health and Human Sciences, University of Greenwich, London, UK
[16]School of Life Course and Population Sciences, King's College London, London, UK
[17]Department of Epidemiology, Geisel School of Medicine at Dartmouth, Dartmouth College, Dartmouth, USA

[*]Corresponding author anthony.dorling@kcl.ac.uk

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# Plain language summary

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# Plain language summary

Although kidney transplantation is the gold-standard treatment for kidney failure, thousands of transplants fail each year due to damage by the immune system. Finding circulating antibodies against the transplant can identify patients at high risk of failure. Under-treatment with immunosuppressive drugs plays a part in promoting the damage and increasing immunosuppression can slow progression in some but not all patients. In the Optimized TacrolimuS and MMF for HLA Antibodies after Renal Transplantation OuTSMART trial, we screened kidney transplant patients for circulating antibodies then, in the intervention arm, counselled everyone on the importance of taking immunosuppression, before optimising treatments to 'best available'. We recruited > 2000 patients and split them into two groups randomly; in the first we revealed antibody results, encouraged adherence and tailored treatment to a combination of three drugs called tacrolimus, mycophenolate, and prednisolone, in a regimen that was judged optimal for each. In the second group, we did not release the antibody test results to patients or their doctors, and all treatment decision were based on local standard of care. At the end, we compared the numbers of transplant failures in each group. We confirmed that patients with antibodies were at higher risk of transplant failure, but found no differences in failures between those in whom we had intervened compared to those treated by standard of care. Although more developed rejection after standard care, there were no differences in the other things we measured, including the numbers who died, developed diabetes, infections or cancer and no differences in the number who developed new side effects. We therefore conclude that there is no basis for optimising drug treatment in those with antibodies at risk of transplant failure. Instead, novel treatments are needed. This trial will influence current practice around the world and hopefully incentivise research into new strategies to prevent transplant failure.

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