REmote preconditioning for Protection Against Ischaemia–Reperfusion in renal transplantation (REPAIR): a multicentre, multinational, double-blind, factorial designed randomised controlled trial

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Plain English summary

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Kidney transplantation transforms the lives of patients with kidney failure. However, the transplanted kidney has a limited lifespan and many patients eventually have to restart dialysis. The REPAIR trial investigated a method for increasing the lifespan of the transplanted kidney to delay the need to return to dialysis and retransplantation. During a transplant operation the kidney is removed from the donor and implanted in the recipient. During this procedure the blood supply is cut and this causes a degree of damage. In the REPAIR trial a method was investigated to limit the damage caused during the operation, so that the kidney would work better once implanted in the patient. Our research had shown previously that reducing the blood flow to the arm activates a reflex that may make organs more resistant to loss of their blood supply. This procedure is called remote ischaemic preconditioning (RIPC) and the REPAIR trial investigated whether RIPC improved kidney function after transplantation. RIPC was performed by applying a blood pressure cuff around the top of the arm and inflating for 5 minutes and deflating for 5 minutes for four cycles in total.

In total, 406 living-donor kidney transplant patients were recruited from hospitals in the UK and Europe. The results indicated that RIPC had a small but clinically important beneficial effect on some measures of kidney function 1 year after transplantation. We concluded that RIPC was safe and convenient and has little cost and that the boost to kidney function might extend the life of the transplanted kidney.
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