

Study of Effects of native renal Artery denervation in Post TRANSPLANT Hypertension

Submission date 26/03/2013	Recruitment status Stopped	☐ Prospectively registered
		☐ Protocol
Registration date 09/05/2013	Overall study status Stopped	☐ Statistical analysis plan
		☐ Results
Last Edited 28/05/2014	Condition category Urological and Genital Diseases	☐ Individual participant data
		☐ Record updated in last year

Plain English summary of protocol

Background and study aims

Kidney transplantation is the best treatment for kidney failure in the majority of patients who would otherwise require dialysis. Patients who undergo kidney transplantation are still at higher risk of cardiovascular disease compared to the general population. Following transplantation, high blood pressure contributes to both cardiovascular disease and also leads to reduced kidney transplant function. Our previous work suggests that up to 80% of kidney transplant patients have high blood pressure, and in about a third of patients blood pressure is not well controlled despite medication. Renal denervation (RDN) is a new treatment for hard to treat high blood pressure. This has been shown to work in patients with normal kidney function. There is some evidence that this technique might work in kidney transplant patients as historical studies show good blood pressure control in patients who have had their original (failed or native) kidneys removed. We would like to see if using RDN as a treatment for high blood pressure in kidney transplant patients works and leads to improvements in heart structure and reduction in over activity of the sympathetic nervous system (nerves involved in fight or flight responses).

Who can participate?

Adult kidney transplant patients aged 18-85 who have had a kidney transplant for more than one year are eligible to participate. Participants should have systolic blood pressure of >140 mmHg at clinic whilst on two or more blood pressure medications.

What does the study involve?

After checking your eligibility we will arrange a baseline assessment visit. At this visit a doctor or a nurse will check your height, weight, blood pressure, current medication and medical history. Blood tests will be taken to find out about your kidney function and a variety of hormones involved in blood pressure and salt regulation. We will also request you to perform a 24-hour urine collection so we can measure salt and hormone profiles in the urine. You will undergo an ECG (heart tracing), 24-hour blood pressure monitoring, and magnetic resonance imaging (MRI), a method of looking at the structure of the heart and kidneys in detail. Measurement of muscle sympathetic nerve activity (MSNA) is an established technique used to assess the activity of the sympathetic nervous system. A small needle (much thinner than the needles used to take blood) is inserted into the peroneal nerve just below the knee. The needle is attached to a recording unit and once the nerve is located a tracing is recorded for 5 minutes.

About 1 week after the first visit you will be admitted to the renal ward. It is important to be aware that RDN is being performed on the kidneys that have already failed, and NOT your kidney transplant. RDN is performed by introducing a needle into an artery in the groin, under local anaesthetic. A small tube (catheter) is fed into the artery to perform an angiogram to take pictures of the arteries supplying the kidney. If this confirms that the arteries are suitable, the radiologist will proceed with the RDN procedure. Temporary blood thinning medication (heparin) will be infused during the procedure. Medication to relieve any anxiety and or pain will be used as required. Blood pressure and heart rate will be closely monitored throughout the procedure. The Symplicity Catheter used for the RDN procedure will be positioned in the artery to the kidney under X-ray guidance and the treatment will be performed. Upon completion, pressure will be applied to the artery in the groin to minimise any risk of bruising from the procedure. Patients will routinely stay in hospital overnight following the procedure.

1 week after the procedure you will again visit the renal transplant clinic. Medication will be adjusted to ensure your blood pressure is neither too high or too low. You will visit the clinic four more times at 1, 2, 3, 4 months after the procedure. These will also be routine visits with blood pressure, weight and blood tests performed in the usual manner with blood pressure medicine adjusted as before. At 6 months after the RDN procedure you will visit the clinic again where we will review your medication. We will also ask you to repeat the same tests as the first visit.

What are the possible benefits and risks of taking part?

RDN may improve your blood pressure and reduce your need for blood pressure medication. Taking part will help doctors understand more about high blood pressure in kidney transplant patients. Having blood taken can lead to a small bruise. With MSNA most patients experience minimal discomfort during nerve recordings. Side effects of the procedure are rare and include a tingling sensation, numbness, or pain/tenderness. Renal denervation can be painful. Every effort will be made to minimise this. Other complications may occur including bruising, pseudoaneurysm, heart rhythm disturbances, such as slow heart rate, hypotension (blood pressure too low), nausea or vomiting, atheroembolism (blockage of a blood vessel), complications associated with the dye (also known as contrast agent) used during the procedure including allergy or temporary worsening of kidney function. There is also exposure to radiation for the procedure.

Where is the study run from?

The Glasgow Renal and Transplant Unit, Western Infirmary Glasgow (UK).

When is the study starting from and how long will it run for?

From April 2013 to April 2015.

Who is funding the study?

Medtronic (UK).

Who is the main contact?

Dr Patrick Mark

Patrick.Mark@glasgow.ac.uk

Contact information

Type(s)

Scientific

Contact name

Dr Patrick Mark

Contact details

Senior Lecturer and Honorary Consultant Nephrologist
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Additional identifiers**Protocol serial number**

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Study information**Scientific Title**

Study of Effects of native renal Artery denervation in Post TRANSPLANT Hypertension: a non-randomised unblinded interventional study

Acronym

SERENADE-TRANSPLANT

Study objectives

We hypothesise that renal denervation (RDN), as a treatment of high blood pressure, leads to a reduction in systolic (and diastolic) blood pressure on 24-hour ambulatory blood pressure monitor in kidney transplant patients.

Ethics approval required

Old ethics approval format

Ethics approval(s)

West of Scotland Research Ethics Service Committee 3, 20/02/2013

Primary study design

Interventional

Study design

Non-randomised unblinded interventional study

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Renal transplantation

Interventions

Renal denervation as a treatment for hypertension, performed to the native renal arteries.

Updated 28/05/2014: this trial was stopped due to lack of funding.

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

The primary end point will be systolic blood pressure on 24-hour ambulatory blood pressure monitor

Key secondary outcome(s)

1. Left ventricular mass index at cardiac MRI scan at 6 months following RDN
2. Diastolic blood pressure on 24-hour ambulatory blood pressure monitor
3. Number of antihypertensive agents used
4. Renal function by estimated GFR
5. Urinary protein estimation by urinary protein: creatinine ratio

Completion date

01/04/2015

Reason abandoned (if study stopped)

Lack of funding/sponsorship

Eligibility

Key inclusion criteria

1. Patients aged 18-85 years, either sex, with a clinic systolic blood pressure of 140 mmHg or more, despite compliance with two or more antihypertensive drugs, are eligible for inclusion
2. Patients should be >12 months post renal transplantation with no evidence of rejection in past 3 months and doses of immunosuppression should be stable for >6 weeks prior to study entry

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Upper age limit

85 Years

Sex

All

Key exclusion criteria

1. Inability to give informed consent
2. Contraindications to MRI imaging (pacemaker, extreme claustrophobia)
3. Pregnancy and breastfeeding
4. Impaired transplant kidney function (estimated glomerular filtration rate [GFR] <30 ml/min)
5. Known secondary cause of hypertension other than renal disease (e.g. Conn's syndrome, Pheochromocytoma etc)

Date of first enrolment

01/04/2013

Date of final enrolment

01/04/2015

Locations**Countries of recruitment**

United Kingdom

Scotland

Study participating centre

Senior Lecturer and Honorary Consultant Nephrologist

Glasgow

United Kingdom

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Sponsor information**Organisation**

NHS Greater Glasgow and Clyde (UK)

ROR

<https://ror.org/05kdz4d87>

Funder(s)**Funder type**

Industry

Funder Name

Medtronic (UK)

Alternative Name(s)

Medtronic Inc.

Funding Body Type

Private sector organisation

Funding Body Subtype

For-profit companies (industry)

Location

United States of America

Results and Publications

Individual participant data (IPD) sharing plan**IPD sharing plan summary**

Not provided at time of registration