

# Second warm ischemia elimination in kidney transplantation

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|----------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Submission date</b><br>06/06/2016   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol            |
| <b>Registration date</b><br>15/06/2016 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input checked="" type="checkbox"/> Results |
| <b>Last Edited</b><br>10/07/2023       | <b>Condition category</b><br>Surgery              | <input type="checkbox"/> Individual participant data                                              |

## Plain English summary of protocol

### Background and study aims:

In a healthy person, the kidneys are responsible for filtering out the waste products and excess water in the blood, and converting them into urine. If the kidneys suddenly stop working (acute kidney injury) or are suffering from severe, long-term disease of the kidneys (chronic kidney failure) then the body is unable to get rid of the waste products building up in the blood. Eventually, the kidneys are no longer able to support the body's needs (end stage renal disease) and so a treatment to replace the work of the failed kidneys is needed. Kidney transplantation is the best treatment for end-stage renal disease. Kidneys harvested from deceased donors are already damaged before transplantation, both during storage (cold ischemia time) and the surgical procedure itself (warm ischemia time). There is currently a lack of information concerning the influence of warm and cold ischemia on kidney tissue. It is possible to eliminate warm ischemia using specially designed cooling system during kidney transplantation (ice bag technique, IBT). The aim of the study is to investigate whether elimination of warm ischemia will improve kidney allograft function and survival. The study will also assess the immune-related gene expression in kidney biopsy samples taken during transplantation.

### Who can participate?

Adult kidney transplant candidates on an active waiting list for a new kidney who will have their surgery at Wroclaw Medical University Hospital.

### What does the study involve?

Kidney recipients are randomly assigned to one of two groups. Those in the first group receive donor kidneys stored using the ice bag technique (IBT). This is in the form of a special bag, in which the kidney is placed in a central compartment with compartments of ice-cooled sterile saline (salt water) on either side, which is then placed on melting slushed ice. Those in the second group receive a kidney from the same donor, which is stored using the standard technique (no extra cooling). Participants in both groups attend follow up visits 7 days, 14 days, 1 month, 3 months, 6 months, 12 months, 18 months, 24 months and 60 months after their surgery in order for the functioning of the new kidney and any side effects to be assessed. In addition, for participants in both groups, three samples are taken of the transplanted kidney

immediately after the organ is recovered from the host, immediately before transplantation, and 30 minutes after the kidney has been transplanted in order to measure levels of immune system genes in the organ.

What are the possible benefits and risks of participating?

There will be no immediate direct benefit to those taking part, but there should be benefits to future transplant recipients if the study confirm that using ice bag technique improves the short- as well as long-term results of kidney transplantation. By taking part in this study there are no risks of physical injury or harm other than standard risk related to kidney transplantation procedure.

Where is the study run from?

Wroclaw Medical University Hospital

When is study starting and how long is it expected to run for?

August 2005 to December 2011

Who is funding the study?

The Polish Ministry of Science and Higher Education (Poland)

Who is the main contact?

Dr Dorota Kamińska

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## Contact information

**Type(s)**

Scientific

**Contact name**

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## Additional identifiers

**Protocol serial number**

2 P05B 165 29

## Study information

**Scientific Title**

Second warm ischemia elimination in kidney transplantation - structural and immunological changes in transplanted kidneys

### **Study objectives**

Null hypothesis:

There will be no significant differences between the interventions with regards to graft function and survival, recipient function and survival, and intragraft immune-related gene expression.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Commission of Bioethics at Wroclaw Medical University, 13/01/2005, ref: 36/2005

### **Primary study design**

Interventional

### **Study design**

Single-centre randomised parallel trial

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Kidney transplantation

### **Interventions**

Patients who fulfill the selection criteria and are willing to participate will be asked to complete a consent form, after reading a participant information leaflet. Treatment allocation is performed centrally at Department of Vascular, General and Transplant Surgery. The duration of participants in the trial is up to 60 months. All kidney allograft recipients were randomly assigned before transplantation to one of two groups

Group 1: Participants receive donor kidneys stored using the ice bag technique (IBT). This involves using a specially designed disposable polyethylene bag produced by Raguse GmbH (Germany). The kidneys were prepared for implantation on the back table and put into a polyethylene bag in order to eliminate warm ischemia. The bag consisted of three compartments. The middle compartment holding the graft was surrounded by two external compartments filled with ice-cooled sterile saline and placed on the melting slushed ice. After placing the graft in the middle compartment the renal vein and artery were pulled outside the bag via a small hole in the middle compartment. Then the vascular renal vein and renal artery were anastomosed to the iliac vein and artery. After completion of the vascular anastomoses followed by graft reperfusion the polyethylene bag was removed from the transplanted kidney.

Group 2: Participants receive the contralateral kidneys from the same donors using the standard technique, which do not involve the extra cooling.

Except the use of IBT the pre- as well as post-transplant treatment do not differ between study groups. For both groups, during the transplantation procedure, three consecutive kidney core biopsies are obtained with a 16 G automatic needle (TSK Laboratory, Japan) at the following timepoints:

1. Immediately after organ recovery - biopsy 1 (B1)
2. After organ storage and cold ischemia, on the back table, before the transplantation procedure -biopsy 2 (B2)
3. Approximately 30 minutes after reperfusion -biopsy 3 (B3)

Participants in both groups attend follow up visits 7 days, 14 days, 1 month, 3 months, 6 months, 12, months, 18 months, 24 months and 60 months post-transplant. On each of these visits, the following clinical parameters are assessed: side-effects, graft survival, delayed graft function, rejection episodes, serum creatinine concentration, eGFR (estimated by MDRD formula), urine analysis, overall patient survival.

### **Intervention Type**

Procedure/Surgery

### **Primary outcome(s)**

1. Graft function is determined by measuring eGFR (using MDRD formula) at 7 days, 14 days, 1, 3, 6, 12, 18, 24 and 60 months post-transplantation
2. Graft survival is measured through medical record review and patient urine output 7 days, 14 days, 1, 3, 6, 12, 18, 24 and 60 months post-transplantation
3. Delayed graft function rate is assessed through reviewing patient notes for dependence on haemodialysis at 7 days, 14 days, 1, 3, 6, 12, 18, 24 and 60 months post-transplantation
4. Rejection episode rate is determined through medical note review at 7 days, 14 days, 1, 3, 6, 12, 18, 24 and 60 months post-transplantation

### **Key secondary outcome(s)**

Relationship between intragraft gene expression (B1,B2,B3) and post-transplant clinical parameters (patient and graft survival, graft function described as eGFR, delayed graft function and acute rejection episodes) are assessed at 7 days, 14 days, 1, 3, 6, 12, 18, 24 and 60 months post-transplantation

### **Completion date**

31/12/2011

## **Eligibility**

### **Key inclusion criteria**

1. Kidney transplant candidate on active waiting list assigned to transplantation in Wroclaw Medical University Hospital
2. Aged 18 years and over
3. Provision of written informed consent

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

**Lower age limit**

18 Years

**Sex**

All

**Total final enrolment**

46

**Key exclusion criteria**

1. Decline participation in this study
2. Unable to comply with requirements of this study protocol

**Date of first enrolment**

10/09/2005

**Date of final enrolment**

31/12/2009

**Locations****Countries of recruitment**

Poland

**Study participating centre****Wroclaw Medical University Hospital**

Transplantation Center

Department of Vascular, General and Transplant Surgery and Department of Nephrology and Transplantation Medicine

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**Sponsor information****Organisation**

The Polish Ministry of Science and Higher Education

**ROR**

<https://ror.org/05dwvd537>

**Funder(s)**

**Funder type**  
Government

**Funder Name**  
The Polish Ministry of Science and Higher Education

## Results and Publications

Individual participant data (IPD) sharing plan

**IPD sharing plan summary**  
Data sharing statement to be made available at a later date

### Study outputs

| Output type                     | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---------------------------------|---------|--------------|------------|----------------|-----------------|
| <a href="#">Results article</a> |         | 03/11/2016   | 10/07/2023 | Yes            | No              |