COPE-POMP: 'in house' pre-implantation oxygenated hypothermic machine perfusion reconditioning after cold storage versus cold storage alone in expanded criteria donor (ECD) kidneys from brain dead donors

Submission date	Recruitment status No longer recruiting	[X] Prospectively registered		
28/02/2014		☐ Protocol		
Registration date 09/04/2014	Overall study status Completed	Statistical analysis plan		
		[X] Results		
Last Edited	Condition category	Individual participant data		
22/04/2021	Surgery			

Plain English summary of protocol

Background and study aims

Kidney transplantation is a successful treatment for end-stage renal disease. The standard methods for storing and transporting kidneys for transplantation are to either store them in cold storage solution or to perfuse them with a cold perfusion solution on ice. It has been shown that machine perfusion preservation improves short term graft function, especially in kidneys donated by expanded criteria donors (ECD). Experimental models have shown that it is sufficient to perform machine perfusion immediately prior to implantation and reperfusion of the organ. This would also show a benefit to logistics, as kidneys would only need to be perfused at the transplantation center of the recipient. The aim of this study is to assess whether machine perfusion only immediately prior to implantation and after transport in cold storage solution will reduce damage, decrease ischemia-reperfusion injury and improve graft survival and function in ECD kidneys.

Who can participate?

Kidneys donated after brain death from donors fulfilling the United Network for Organ Sharing (UNOS) ECD criteria.

What does the study involve?

Two groups will be compared: a control group (static cold storage) and an interventional group (hypothermic oxygenated machine perfusion after static cold storage).

What are the possible benefits and risks of participating?

Short-term hypothermic oxygenated machine perfusion may be beneficial to static cold storage in ECD kidneys. In this study, two standard preservation methods are being compared.

Where is the study run from?

The trial will be carried out in academic hospitals with an active adult kidney transplant programme in Germany, Belgium, the Netherlands, United Kingdom and their donor hospitals. The lead center will be the University Hospital Essen, Germany.

When is the study starting and how long is it expected to run for? December 2013 to July 2019

Who is funding the study? European Union

Who is the main contact? Professor Andreas Paul

Contact information

Type(s)

Scientific

Contact name

Prof Andreas Paul

Contact details

Department of General, Visceral and Transplant Surgery University Hospital Essen Hufelandstr. 55 Essen Germany 45147

Additional identifiers

Protocol serial number N/A

Study information

Scientific Title

A prospective, randomized, parallel group, single blinded, controlled, multi-center, non-paired superiority trial to compare the effect of short-term 'in house' oxygenated hypothermic machine perfusion preservation after static cold storage to static cold storage alone in transplantation of expanded criteria donor (ECD) kidneys donated after brain death

Acronym

COPE-POMP (Consortium for Organ Preservation in Europe - Pre-implantation Oxygenated hypothermic Machine Perfusion)

Study objectives

Short-term reconditioning using hypothermic oxygenated machine perfusion preservation following static cold storage and prior to reimplantation is superior to static cold storage alone in ECD kidneys.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Ethics Board of the Faculty of Medicine, University of Duisburg-Essen, 25/09/2014, ref: 14-5783-BO

Study design

Prospective randomized parallel group patient-blinded controlled multi-center non-paired superiority trial

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Machine perfusion preservation techniques for ECD kidneys

Interventions

ECD kidneys will be randomized to be preserved using either static cold storage alone or static cold storage followed by hypothermic oxygenated machine perfusion.

Group 1 - control group: the kidney wil be retrieved and stored in cold storage solution until back-table preparation and kidney transplantation are performed.

Group 2 - experimental group: the kidney will be placed in cold storage solution until arrival at the recipient's transplant center. Following back-table preparation the kidney will be placed on the Kidney Assist device to be perfused with cold oxygenated Belzer's Machine preservation solution until immediately before implantation.

The previous sponsor for this trial (up to 24/04/2014) was:
University Hospital Essen (Germany)
Hufelandstr. 55
Essen
45147
Germany
http://uk-essen.de/

Intervention Type

Procedure/Surgery

Phase

Not Applicable

Primary outcome(s)

Graft survival after 1 year

Key secondary outcome(s))

- 1. Patient and graft survival at day 7, and at 3, 6 and 12 months after transplantation
- 2. Estimated glomerular filtration rate (eGFR) defined by the CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) equation at days 7 and 14 and 3, 6 and 12 months after transplantation
- 3. Delayed graft function (DGF), defined as the need for dialysis within the first 7 days after transplantation and preceding the return of kidney function
- 4. Slow graft function (SGF) based on functional DGF (fDGF), defined as the absence of a decrease in the serum creatinine level of at least 10% per day for at least 3 consecutive days in the first 7 days after transplantation
- 5. Primary non-function (PNF), defined as the continued need for dialysis at 3 months after transplantation
- 6. Biopsy proven acute rejection incidence
- 7. Quality of life measures (EQ-5D-5L) at time of consent, 3 and 12 months
- 8. Health economic analysis: length of hospital stay, intensive care unit stay, requirement of dialysis
- 9. Incidence of hyperkalemia at 3, 6 and 12 months
- 10. Incidence of calcineurin inhibitor toxicity

Completion date

01/07/2019

Eligibility

Key inclusion criteria

Donors:

1. Kidneys from brain dead donors fulfilling the United Network for Organ Sharing ECD criteria

Recipient:

- 1. At least 18 years old.
- 2. Listed for renal transplantation due to end stage renal disease within one of the participating centers
- 3. The transplantation is the participant's first or re-transplantation

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Sex

Total final enrolment

262

Key exclusion criteria

Donor:

- 1. Kidney used for a multi-organ transplantation
- 2. Donor aged 85 or older
- 3. Donation after cardiac death
- 4. Kidney used for double-kidney transplantation within the same recipient

Recipient:

- 1. Simultaneous participation in another perfusion trial
- 2. Scheduled to undergo multi-organ transplantation
- 3. Planned dual-kidney transplantation
- 4. Both kidneys being transplanted within the same recipient
- 5. Is unable or unwilling to provide informed consent

Date of first enrolment

01/05/2014

Date of final enrolment

18/05/2018

Locations

Countries of recruitment

United Kingdom

England

Belgium

Germany

Netherlands

Study participating centre

Department of General, Visceral and Transplant Surgery

University Hospital Essen Hufelandstr. 55 Essen Germany 45147

Oxford Transplant Centre

Oxford University Hospitals The Churchill Hospital Oxford United Kingdom OX3 7LJ

Study participating centre University Hospitals Leuven

Transplantation Surgery Herestraat 49 Leuven Belgium 3000

Study participating centre University Hospital Groningen

Transplantation Surgery Rijksuniversiteit Groningen 9713 Oosterparkwijk Groningen Netherlands 9713

Sponsor information

Organisation

University of Oxford (UK)

ROR

https://ror.org/052gg0110

Funder(s)

Funder type

Government

Funder Name

European Union - Seventh Framework Programme (FP7) (grant number 305934 - Work Package 3)

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during this study will be included in the subsequent results publication.

IPD sharing plan summary

Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		01/06/2021	22/04/2021	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes