Application of mesenchymal stem cells in patients with end-stage renal disease

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Ethical review	Not approved
Status	Will not start
Health condition type	Nephropathies
Study type	Interventional

Summary

ID

NL-OMON34665

Source
ToetsingOnline

Brief title
MiSOT-2

Condition

- Nephropathies

Synonym
end-stage renal disease, renal disease

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: kidney disease, Mesenchymal stem cell

Outcome measures

Primary outcome

The primary study parameters are safety and feasibility.

1 Safety: the number of adverse reactions after ASC infusion

2 Feasibility: generation of sufficient numbers of ASC of ESRD patients with the required characteristics and infusion of the cells within the set timeframe

Secondary outcome

The secondary parameters of this study are kidney function and the immunological and regenerative effects of ASC therapy in end-stage renal disease patients.

1 Kidney function: creatinine levels and detection of proteinuria

2 Immunological and regenerative response: serum levels of pro-inflammatory and anti-inflammatory cytokines and growth factors, functionality of peripheral blood mononuclear cells

3 Time frame of effect: timepoint on which maximum levels of immunosuppressive and regenerative markers are measured

Study description

Background summary

The only treatments for patients with end-stage renal disease (ESRD) are dialysis and kidney transplantation. Dialysis, however, severely impairs quality of life, while kidney transplantation is limited by donor-shortage. Furthermore, ischemia-reperfusion injury and nephrotoxic effects of immunosuppressive medication impair kidney-graft function. Mesenchymal stem cells (MSC) have tissue regenerative and immunosuppressive properties that may prolong the life span of diseased kidneys and alleviate the need for immunosuppressive drugs after kidney transplantation. In this phase I study we aim to examine the safety and feasibility of infusion of culture-expanded, autologous adipose tissue-derived MSC (ASC) in ESRD patients before kidney transplantation and examine clinical and mechanistic parameters to pave the way for efficacy trials in ESRD and kidney transplant patients.

Study objective

The primary objective of the study is:
- to establish the safety and feasibility of infusion of escalating doses of autologous ASC in end-stage renal disease patients.

Secondary objectives are:
- to determine the effect of ASC infusion on kidney function
- to detect immunological and regenerative markers after ASC infusion
- to determine the optimal time frame of the effects of ASC infusion

Study design

This is a randomized, blind placebo-controlled intervention study. ASC will be isolated from abdominal subcutaneous adipose tissue of end-stage renal disease patients with glomerular filtration rate between 15 and 25 that are planned for living (un)related kidney transplantation. ASC are expanded ex vivo and intravenously infused in escalating doses. Every patient will receive a single infusion of ASC.

Intervention

We will include sixteen subjects. Twelve subjects will receive a single intravenous infusion of ASC. Doses of ASC will escalate from 0.33x106, 1x106 to 3x106 ASC/kg body weight. Four subjects will receive placebo (infusion liquid without cells).

Study burden and risks

A small amount (1-4 grams) of abdominal subcutaneous adipose tissue will be removed under local anaesthesia. Two months later, ASC will be infused via an intravenous catheter. Subjects will stay in the hospital for observation for 3 hours. After infusion, subjects will undergo non-invasive clinical examinations

on day 1, 3, 7, and 21. During the study, seven times 25 ml of blood will be collected. Subjects will visit the hospital six times.
This is a phase 1 study focussed on safety and tolerability. Although studies in other patient groups suggest that infusion of ASC is safe, there is a risk for the incidence of oppurtunistic infections or viral reactivations. Subjects will be screened for microbiological and viral infections before participation in the study. No direct benefits for the participants may be expected at this stage. However, succesful completion of this study may lead to follow-up studies that are designed to test efficacy. As a group, ESRD patients may therefore benefit from this study.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Kidney transplantation candidate with a willing donor
Pre-emptive (not yet on dialysis)
Glomerular filtration rate is between 15 and 25
Female subjects must be non-pregnant and non-breast-feeding

Exclusion criteria

Subject is HIV1, HIV2, Hepatitis B, Hepatitis C or HTLV positive
Subject has active infection or abscess
Subject has evidence or prior history of active malignancy
Subject previously received an organ transplant
Subject uses immunosuppressive medication

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	Placebo
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Will not start
Enrollment:	16
Type:	Anticipated

Medical products/devices used

Product type:	Medicine
Generic name:	Somatic cells autologous

Ethics review

Not approved

Date:	25-01-2011
Application type:	First submission
Review commission:	CCMO: Centrale Commissie Mensgebonden Onderzoek (Den Haag)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
EudraCT	EUCTR2010-018734-43-NL
CCMO	NL31560.000.10