Characterization of buffy-coat-derived granulocytes for clinical use: - identifying clinical and laboratory parameters for decision making

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• To find surrogate markers in plasma in order to identify patients, which may benefit from granulocyte transfusions and which are at risk for transfusion complications.• To determine - in combination with the outcomes of the NEPTUNIS study -...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Haematological disorders NEC
Study type	Observational invasive

Summary

ID

NL-OMON50313

Source
ToetsingOnline

Brief title
Biomarker Study

Condition

- Haematological disorders NEC

Synonym
infections, neutropenic fever

Research involving
Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum

Source(s) of monetary or material Support: KWF

Intervention

Keyword: biomarkers, neutropenic fever

Outcome measures

Primary outcome

Main study parameters/endpoints:

• Identification of biomarkers indicating (the course of) neutropenia and

neutropenic fever.

• A predictive model from laboratory and clinical markers in order to predict

the cause of the neutropenic fever.

• A model based on the established biomarkers to identify patients suitable for

GTX and to determine the individual risk for complications during GTX.

Secondary outcome

not applicable

Study description

Background summary

Rationale:
Life-threatening infections continue to be a consequence of prolonged severe neutropenia (<0.5x109/L neutrophils), which most commonly occur in case of intensive chemotherapy for hematological malignancies, during conditioning for myeloablative allogeneic hematopoietic stem cell transplantation (HSCT) and during intensified immunosuppression due to graft-versus-host disease. The associated invasive infections with bacteria and fungi (i.e. yeasts and molds), with the latter being increasingly resistant to antifungal therapy, lead to high morbidity, intensive care treatment and - often - ensuing death. Moreover, intensified and prolonged antifungal therapy in patients after allogeneic HSCT often interferes with immunosuppressive therapy resulting in liver- and renal toxicity. In this respect administration of donor neutrophilic granulocytes

(polymorphonuclear neutrophils, PMNs) is a logical but still unproven experimental therapy. Prophylactic use of granulocyte transfusions (GTX) has been accepted to be of limited value in clinical practice. In contrast, the use of therapeutic GTX to resolve existing infections has been shown to be effective. However, this approach has not gained lasting acceptance over the years. This may be explained by technical issues (yield, neutrophil activation during isolation, etc), or it may be related to the fact that GTX is often considered too late, i.e. with the patient in a deplorable state or due to the fear to induce anti-HLA antibodies in patients facing a allogeneic HSCT. Surrogate markers in patient plasma may help to identify patients which will benefit from GTX and may help to exclude patients at high risk for transfusion associated complications.

Study objective

• To find surrogate markers in plasma in order to identify patients, which may benefit from granulocyte transfusions and which are at risk for transfusion complications.
• To determine - in combination with the outcomes of the NEPTUNIS study - markers released during neutropenia and neutropenic fever in plasma of patients undergoing high-dose chemotherapy due to hematological malignancies.
• To develop a predictive model of biomarkers to distinguish between a sterile inflammation and an infection during febrile neutropenia.

Study design

Study design: prospective follow up study

Study burden and risks

There is no burden. The twice weekly or every 48 hour sample collections will be planned as much as possible together with regular blood drawings. If somehow that*s not possible, an extra venipuncture is necessary.

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

• 18 years or older
• Admitted to the adult haematology department of the AMC
• Diagnosed with a hematological malignancy and receiving high dose chemotherapy, undergoing myeloablative treatment prior to allogeneic HSCT or having intensified immunosuppression due to graft-versus-host disease.
• Able and willing to provide written and dated informed consent prior to any study specific procedure

Exclusion criteria

• Patients unable to give written and dated informed consent
• Patients younger than 18 years
• Patients who had granulocyte transfusions before inclusion

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	05-08-2016
Enrollment:	200
Type:	Actual

Ethics review

Approved WMO Date:	11-05-2016
Application type:	First submission
Review commission:	METC Amsterdam UMC
Approved WMO Date:	04-11-2020
Application type:	Amendment
Review commission:	METC Amsterdam UMC

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
CCMO	NL54369.018.15