Minimal residual disease in peripheral blood compared to bone marrow in patients treated for acute myeloid leukemia

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Ethical review	Approved WMO
Status	Recruiting
Health condition type	Leukaemias
Study type	Observational invasive

Summary

ID

NL-OMON52290

Source
ToetsingOnline

Brief title
MRD in peripheral blood compared to bone marrow in AML patients

Condition

- Leukaemias

Synonym
Acute myeloid leukemia, AML

Research involving
Human

Sponsors and support

Primary sponsor: Vrije Universiteit Medisch Centrum

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Acute myeloid leukemia, Bone marrow collection, Minimal residual disease, Peripheral blood

Outcome measures

Primary outcome

The primary outcome is to compare the prognostic value of MRD in peripheral

blood and bone marrow.

Secondary outcome

The secondary outcome measure is the amount of leukemic stem cells (LSC) in

bone marrow and peripheral blood and the concordance between MRD in PB and BM.

Study description

Background summary

Patients with acute myeloid leukemia (AML) undergo multiple bone marrow (BM) aspirations. The first collection is needed to make the diagnosis and with subsequent punctures therapeutic outcome is assessed and any residual leukemic cells are measured ("Measurable Residual Disease" (MRD)) to establish Complete Remission (CR) and guide consolidation treatment. A positive MRD result in BM is strongly associated with the development of relapse and poorer survival for the patient. The level of MRD is lower in peripheral blood (PB) compared to BM, but previous research has shown that MRD can nevertheless also be measured with a high specificity in PB. But the prognostic value of MRD in PB has never been examined. Because MRD may also be used for early prediction of relapse during and after therapy, it has to be measured more frequently at multiple time points. BM aspiration is a painful and expensive procedure, therefore it would be of great benefit to the patient if the BM sample could be replaced by a PB sample. Especially during therapy, almost all patients have a central venous catheter, which makes blood collection less invasive.

Study objective

Our research aims to determine and compare MRD in BM and PB with our current

qualified MRD test. The study takes place in at the Amsterdam UMC location VUmc. We take two extra tubes (14 ml total) of heparin blood at the same day as the planned BM sampling in AML patients. The most important outcome is to compare the standard BM-MRD value with PB-MRD for each collection point during and after treatment. We will probably find a lower sensitivity, which may be counterbalanced by an increase in specificity in PB, making it still relevant for prediction of relapse. In addition, we will measure and compare leukemic stem cells (LSC) in both materials, since the LSC frequency is currently prospectively being evaluated as prognostic factor for relapse and survival as well. If a good concordance between the two materials is demonstrated, this may lead to replacement of the BM aspiration with PB during and after therapy.

Study design

This is an observational study in which the MRD levels in PB will be compared with those in BM. Patients will be approached for participation by their treating physician, researcher or nurse.
We expect a maximum of 50 patients to be eligible for inclusion per year at location VUmc and 15 per year at location AMC. Therefore, we hope to reach the desired amount of inclusions within 3 years after the start of the study. After last inclusion, patients will be followed for an additional year.

Study burden and risks

After enrolment, we will ask for two extra tubes of PB on the day the patient undergoes a BM aspiration. The number of blood samples per patient will differ, but on average we expect to collect three separate PB samples per patient. Most patients will already have an central venous catheter as part of the standard treatment. In which case, the blood will be drawn from this catheter.

Contacts

Public
Vrije Universiteit Medisch Centrum

De Boelelaan 1117
Amsterdam 1081HV
NL
Scientific
Vrije Universiteit Medisch Centrum

De Boelelaan 1117
Amsterdam 1081HV
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Inclusion criteria

- Patient with:
o a diagnosis of AML and related precursor neoplasms according to WHO 2008 classification (excluding acute promyelocytic leukemia) including secondary AML (after an antecedent hematological disease (e.g. MDS) and therapy-related AML), or
o acute leukemia*s of ambiguous lineage according to WHO 2008 or
o a diagnosis of refractory anemia with excess of blasts (MDS) and IPSS-R score > 4.5
- Treated according to HOVON clinical trials
- Age 18 yr or older
- A bone marrow aspiration has been scheduled
- WHO performance status 0, 1 or 2
- Written informed consent

Exclusion criteria

- Acute promyelocytic leukemia
- Pregnant or lactating females
- Unwilling or not capable to use effective means of birth control

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	08-10-2021
Enrollment:	151
Type:	Actual

Ethics review

Approved WMO Date:	05-07-2021
Application type:	First submission
Review commission:	METC Amsterdam UMC
Approved WMO Date:	09-06-2022
Application type:	Amendment
Review commission:	METC Amsterdam UMC
Approved WMO Date:	06-07-2022
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	NL75813.029.20