Platelet analysis in patients with haematological diseases with increased risk of thrombosis and bleeding

Published: 27-03-2020
Last updated: 12-04-2024

To better treat and understand bleeding and thrombotic complications of these diseases and treatments, more insight is needed into the pathophysiology. WIth the findings of the current study we would like to increase knowledge on how platelets (and...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Haematopoietic neoplasms (excl leukaemias and lymphomas)
Study type	Observational invasive

Summary

ID

NL-OMON55308

Source
ToetsingOnline

Brief title
PART

Condition

- Haematopoietic neoplasms (excl leukaemias and lymphomas)
- Embolism and thrombosis

Synonym
bleeding, thrombosis

Research involving
Human

Sponsors and support

Primary sponsor: Catharina-ziekenhuis
Source(s) of monetary or material Support: TiCardio EU beurs

Intervention

Keyword: bleeding, pathophysiology, platelets, thrombosis

Outcome measures

Primary outcome

Determinants

- Extent of thrombus formation and platelet activation under flow

- Cytosolic calcium activation in platelets

- Platelet leukocyte complex formation

- Platelet protein expression

Outcome

Bleeding or thrombosis

Secondary outcome

Difference of platelet assays in cases vs. controls

Study description

Background summary

Background:
Patients with hematological diseases and treatment thereof are at increased risk for thrombosis or bleeding. Why this is, is not fully knwon.

With regards to thrombosis, patients with essential thrombocytosis and polycytemia vera are at in increased risk for venous thrombosis. How this works is currently not fully understood, with a possible role for platelet activation, neutrophils and JAK2 mutation status.
Patients with chronic myeloid leukemia that are being treated with tyrosine kinase inhibitors nilotinib and ponatinib are at increased risk for both arterial and venous thrombosis. Also hereof pathophysiology is largely unkown, with a possible role for increased endothelial cell activation, Von Willebrand Factor expression and platelet adhesion.

On the contrary, patients treated with ibrutinib (eg. patients with chronic lymfatic leukemia (CLL), mantle cell lymphoma and Morbus Waldenstrom (MW)) have an increased bleeding risk. As ibrutinib is an important new treatment strategy but requires life long treatment, management of bleeding complications is crucial.

This study will increase pathofysiological knowledge on platelet function in these patients and study which platelet function test are most altered in patients experiencing thrombosis or bleeding.

Study objective

To better treat and understand bleeding and thrombotic complications of these diseases and treatments, more insight is needed into the pathophysiology. WIth the findings of the current study we would like to increase knowledge on how platelets (and thrombus formation) function in these patients.
More importantly, we will try to assess which platelet function tests are most altered in patients with a bleeding or thrombosis event.

Study design

Cases and controls will be included.
Cases: patients are included if they have a hematological condition or treatment and a thrombosis or bleeding event. Specifically this includes patiens with polycytemia vera, essential trombocytosis and CML patients with tyrosine kinase inhibitors and patients using ibrutinib e.g. CLL, mantle cell lymphoma en morbus waldenstrom patients. Controls will be similar patients (matched by disease characteristics, age, gender, etnicity) but without a thrombosis or bleeding event.

Of these patients, clinical data will be stored regarding disease characteristics, treatment and thrombosis and bleeding events at baseline and after 1 year. There will be one blood draw (4 tubes, 24ml) for assessment of thrombus formation and platelet function. This will happen by assesing thrombusformation under flow (in the Maastricht flow chamber, a validated instrument), platelet stimulation and cytosolic calcium assessment and measurement of platelet-leukocyte complex formation. Also, platelets will be isolated and protein expression will be quantified. This will give direct insight into which pathways and proteins are active in platelets of patients, and this is correlated to thrombusformation under flow.

We will then assess whihch platelet function test are (most) altered in patients with bleeding or thrombosis.

Study burden and risks

Little burden for patient as only a single blood draw

Contacts

Public
Catharina-ziekenhuis

Michelangelolaan 2
Eindhoven 5623EJ
NL
Scientific
Catharina-ziekenhuis

Michelangelolaan 2
Eindhoven 5623EJ
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Inclusion criteria

Patients with hematological disease and drugs with increased bleeding or thrombosis risk
For cases: with thrombosis or bleeding
For controls: without bleeding or thrombosis

Exclusion criteria

- <18 year. - >1 platelet inhibiting drug

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	29-10-2019
Enrollment:	102
Type:	Actual

Ethics review

Approved WMO Date:	27-03-2020
Application type:	First submission
Review commission:	MEC-U: Medical Research Ethics Committees United (Nieuwegein)
Approved WMO Date:	11-11-2021
Application type:	Amendment
Review commission:	MEC-U: Medical Research Ethics Committees United (Nieuwegein)

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	NL71477.100.19