Coagubility in severe mitral regurgitation: A within-patient evaluation of coagulation status before and after Mitral Valve Transcatheter Edge-to-Edge Repair.

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To evaluate coagulation status in patients with moderate-severe to severe MR, with concomitant atrial enlargement or atrial fibrillation, before and after M-TEER to explore the complex relationship between MR and coagulability.

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Coagulopathies and bleeding diatheses (excl thrombocytopenic)
Study type	Observational invasive

Summary

ID

NL-OMON56294

Source
ToetsingOnline

Brief title
POPular MR

Condition

- Coagulopathies and bleeding diatheses (excl thrombocytopenic)
- Cardiac valve disorders

Synonym
Atrial fibrillation and leaking heart valve

Research involving
Human

Sponsors and support

Primary sponsor: Sint Antonius Ziekenhuis
Source(s) of monetary or material Support: Onderzoeksfonds St. Antonius Nieuwegein

Intervention

Keyword: 1. Coagubility, 2. Mitral Regurgitation, 3. Atrial Fibrillation, 4. Mitral Valve Transcatheter Edge-to-Edge Repair

Outcome measures

Primary outcome

The difference in coagulation activation, as measured with prothrombin

fragments 1+2 and fibrinopeptide A+B, between baseline and 3 months after

M-TEER

Secondary outcome

Markers of the coagulation cascade, thrombin generation, clot breakdown, and

platelet activation will be measured before and 3 months after M-TEER:

• Coagulation cascade: Prothrombin fragments 1+2, Thrombin-AntiThrombin complex

(TAT), activated coagulation factors (Factor VIIa, Factor IXa, Factor Xa,

Factor Xia, and Factor XIIa in complex with their respective natural

inhibitors), thrombin-generation test (TGT)

• Platelet reactivity: P-selectin expression, beta-thromboglobulin

• Endothelial activation: VWF antigen, sICAM

• Fibrinolysis activity: fibrinogen, soluble fibrin, plasmin-alfa-2-antiplasmin

complex, D-dimer

• VWF multimeres

• Overall thrombus formation assessment (e.g. T-TAS AR chip)

• Full blood count + differentiation

• Clinical endpoints, i.e. bleeding, myocardial infarction, stroke/TIA,

systemic embolism, all-cause death

Study description

Background summary

Mitral Regurgitation (MR) is a condition characterized by abnormal backflow of blood from the left ventricle to the left atrium. Patients are at an increased risk of heart failure and mortality due to this condition. For this reason, moderate to severe MR should be treated. Additionally, MR can lead to dilated atria and atrial fibrillation (AF). Dilated atria and atrial fibrillation can worsen the severity of MR through annular dilation (functional MR). Blood stasis occurs in atrial fibrillation and severely dilated atria, increasing the risk of clot formation in the left atrium and left atrial appendage. If such a clot dislodges, it can cause a stroke. Some studies suggest that MR may have a protective effect against the development of thrombi in the left atrial appendage in patients with dilated atria and atrial fibrillation. The turbulent blood flow associated with moderate to severe MR potentially reduces blood stasis in the left atrium/left atrial appendage, reducing the risk of thromboembolic events. However, conflicting results have been published, showing an increased risk of clot formation in MR and AF.

This study aims to investigate the complex relationship between severe MR and clotting to gain insight into the underlying mechanisms involved. By determining several clotting parameters before and after Mitral Valve Transcatheter Edge-to-Edge Repair (M-TEER), the effect of MR on clotting status can be assessed. Comparing clotting parameters within the same patient can provide insight into the altered clotting dynamics that may occur with MR.

The hypothesis of the study states: After an M-TEER procedure, the coagulation tendency in patients with moderate-severe or severe MR, either with enlarged atria or atrial fibrillation, increases compared to before the procedure.

Study objective

To evaluate coagulation status in patients with moderate-severe to severe MR, with concomitant atrial enlargement or atrial fibrillation, before and after M-TEER to explore the complex relationship between MR and coagulability.

Study design

The study is a monocenter, prospective pilot study in which the patient serves

as their own control. Blood samples will be taken at baseline and 3 months after the procedure. Blood sampling for patients on anticoagulation will be performed before medication intake (trough level). Clinical endpoints will be collected over a period of 3 months.

Study burden and risks

All blood samples are drawn from venepuncture or drawn from a routinely placed IV catheter at baseline (one day before the procedure) and 3 months after M-TEER. Clinical information will be extracted from the patient*s medical file, retrieved from the patient*s general practitioner if needed, or collected during the follow-up moment at 3 months. No benefit or harm is to be expected for the participants.

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 old
- Echocardiographic-proven (TTE) moderate or severe MR with a planned M-TEER procedure

Exclusion criteria

- Patients who are unable to provide informed consent
- Active malignancy excluding non-melanoma skin cancer
- Active liver disease (ALT, ASP, AP >3x ULN or active hepatitis A, B or C)
- Patients using, and unable to omit, nonsteroidal anti-inflammatory drugs, corticosteroids, or hormone replacement therapy
- Known coagulopathy
- Severe anaemia requiring blood transfusion or thrombocytopenia <50 × 10^9/L
- Life expectancy <1 year
- Severe kidney failure (eGFR < 30 mL/min)

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):	29-02-2024
Enrollment:	50
Type:	Actual

Ethics review

Approved WMO

Date:	10-11-2023
Application type:	First submission
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	NL84411.100.23