Inorganic Pyrophosphate in Peripheral Arterial Disease

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The objective of this study is to find out if low plasma PPi levels are involved in PAD. A second aim is find other serum calcification inhibitors involved in PAD.

Ethical review	Approved WMO
Status	Pending
Health condition type	Arteriosclerosis, stenosis, vascular insufficiency and necrosis
Study type	Observational invasive

Summary

ID

NL-OMON48386

Source
ToetsingOnline

Brief title
iPPAD study

Condition

- Arteriosclerosis, stenosis, vascular insufficiency and necrosis

Synonym
intermitent claudication, Peripheral arterial disease

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Utrecht
Source(s) of monetary or material Support: Vrienden van UMC

Intervention

Keyword: Arterial calcification, Inorganic pyrophosphate (PPi), Peripheral arterial disease

(PAD)

Outcome measures

Primary outcome

Differences in plasma PPi levels in patients with PAD with different Fontaine stages and healthy controls.

Secondary outcome

Differences in other plasma calcification inhibitors in patients with PAD with different Fontaine stages and healthy controls.

Study description

Background summary

Peripheral arterial disease (PAD) is a chronic vascular disease with an estimated prevalence of 10% worldwide and up to 30% in patients over 50. Although always considered a result of atherosclerotic disease of the intimal arterial wall, recent histopathological studies show that medial arterial calcification (MAC) is more prevalent than atherosclerosis in femoral arteries of leg amputees, emphasizing its importance in PAD. Several inhibitors of MAC have been identified and include among others inorganic pyrophosphate (PPi), fetuin-a and matrix Gla protein (MGP). Recently, it was shown that the PPi analogue etidronate can halt progressive MAC in patients with pseudoxanthoma elasticum (PXE), a calcification disorder due to a deficiency in the PPi homeostasis. Other treatments targeting for example MGP with vitamin K are currently under investigation. The aim of this study is to find out if low plasma PPi levels are involved in PAD. If this is the case, this would rapidly translate into a clinical trial to test if etidronate can halt arterial calcification in patients with PAD. A second aim is find other serum calcification inhibitors involved in PAD. This might give more insight in the pathophysiology of PAD and might eventually lead to new treatment possibilities (e.g. vitamin K) and more patient specific treatment approaches.

Study objective

The objective of this study is to find out if low plasma PPi levels are involved in PAD. A second aim is find other serum calcification inhibitors

involved in PAD.

Study design

Patient control study

Study burden and risks

Plasma of healthy controls is already being collected in the DECIPHER study (METC 16-622). Blood from 50PAD patients will be collected by venepuncture. The burden for patients to participate in this study is minimal. A total of 27.5ml extra blood will be collected along with blood collection for routine medical care. Participation or refusal to participate in the study will neither have consequences for their treatment. Aside from the normal risks of these venepunctures (hematoma formation, tenderness and swelling of the puncture side, persistent bleeding and vasovagal response) no potential health risks are assumed.

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

1. Age 18 and older.
2. One of four grades of Fontaine classification:
a. Fontaine I: Asymptomatic, incomplete blood vessel obstruction.
b. Fontaine II: Mild claudication pain in limb.
c. Fontaine III: Rest pain, mostly in the feet.
d. Fontaine IV: Necrosis and/or gangrene of the limb.

Exclusion criteria

1. Subjects who are unable or unwilling to sign an informed consent.

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	28-01-2019
Enrollment:	50
Type:	Anticipated

Ethics review

Approved WMO Date:	24-05-2019
Application type:	First submission
Review commission:	METC NedMec

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	NL67567.041.18