The effects of vancomycin on gut bacteria and coagulation values in the blood.

Gepubliceerd: 11-03-2015 Laatst bijgewerkt: 10-01-2025

Recently, (changes in) the gut microbiome (flora / bacteria) have been associated with obesity and insulin resistance, and other cardiovascular risk factors or atherogenic processes. Venous thrombosis shares these risk factors, probably by a shared...

Ethische beoordeling	Positief advies
Status	Werving gestopt
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON20609

Bron
NTR

Verkorte titel
The GRIEG study

Aandoening

Venous thrombosis, gut microbiome, antibiotics, coagulation, complement, obesity.

Ondersteuning

Primaire sponsor: The Arctic University of Norway, Tromsø, department of Clinical Medicine, TREC (Thrombosis Research and Expertise Center), Farmasibygget, 9037 Tromsø, Norge.
Overige ondersteuning: All research of TREC is funded by an independent Norwegian Foundation: the K.G. Jebsen Foundation.

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Factor VIII (FVIII:C)

Toelichting onderzoek

Doel van het onderzoek

Recently, (changes in) the gut microbiome (flora / bacteria) have been associated with obesity and insulin resistance, and other cardiovascular risk factors or atherogenic processes. Venous thrombosis shares these risk factors, probably by a shared low-grade inflammatory profile. This low-grade inflammation may partially be caused by changes in the composition of the gut microbiome or shifts in absolute numbers or abundance of phyli or species of bacteria. This in turn may lead to an increase of gut leakage and to an increased production of lipopolysaccharids (pieces of the outer membrane of gram-negative bacteria) that enter the bloodstream. Consequently a low grade inflammation is present, causing activation of the coagulation system.

Changes in the gut microbiome can be caused by dietary influences, antibiotics and probiotics among other (partially unknown) causes.

We hypothesize that changes in the microbiome of the gut by application of oral vancomycin might increase systemic metabolic endotoxemia in healthy lean volunteers, consequently creating a pro-coagulant state, marked by increased levels of factor VIII, d-dimer, TF+ monocytes and increased thrombin generation and a reduced fibrinolytic system (expressed as a increased clot lysis time), probably caused by increased levels of plasminogen activator inhibitor (PAI). Also, the classical pathway of the complement system might be more activated after the vancomycin challenge. In obese volunteers, one might speculate that the microbiome will change more towards a normal pattern (more alike to baseline [untreated] values of the lean volunteers) but this might be the other way around according to other literature. However, comparing baseline coagulation parameters of obese with non-obese volunteers, we expect to find that obese volunteers having a pro-coagulant and low-grade inflammatory state, with a changed Firmicutes/Bacteriodetes ratio.

Onderzoeksopzet

Outcomes will be assessed at baseline, at 2 days and 23 days after the intervention.

Onderzoeksproduct en/of interventie

Orally applied Vancomycin 500mg 3 times daily for 7 days.

Contactpersonen

Publiek

UMC Groningen - Hematologie - HP AA24

Vladimir Tichelaar
Hanzeplein 1

Groningen 9713 GZ
The Netherlands

Wetenschappelijk

UMC Groningen - Hematologie - HP AA24

Vladimir Tichelaar
Hanzeplein 1

Groningen 9713 GZ
The Netherlands

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- Eighteen years of age or older

- Not older than 40 years

- Comprehension of English or Norwegian language

- Lean bodymass (n=20)

- BMI >=27kg/m2, (n=20)

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- The use of any medication during the last month before the start of the study until the end of the study period (including oral contraceptives)

- Being post-partum or having used the contraceptive pill during the last 3 months before the study

- The use of anti-, probiotics (Idoform Classic Plus) in the 2 months before the study

- Pregnancy in women (a pregnancy test will be offered to all participating women)

- Known chronic medical inflammatory conditions including inflammatory bowel diseases, rheumatic diseases, diabetes mellitus and HIV-infection

- Recent history of illness <1 month with involvement of the gastro-intestinal tract

- A history of irritable bowel disease

- Allergy for vancomycin or teicoplanin

- Kidney diseases or reduced kidney function (eGFR <60ml/min)

- Liver disease or known elevated GGT or ALAT >2x upper limit of normal

- Any current feverish episode at day -7 (T>37.5 degrees Celsius)

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Factorieel
Toewijzing:	Gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	Geneesmiddel

Deelname

Nederland

Status:	Werving gestopt
(Verwachte) startdatum:	01-05-2015
Aantal proefpersonen:	40
Type:	Werkelijke startdatum

Ethische beoordeling

Positief advies

Datum:	11-03-2015
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL4971
NTR-old	NTR5093
EudraCT	2015-001262-25

Resultaten