

Renal Transplant Patient Protein Oxidation Study

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Ingested protein derived amino acids are used for the synthesis of new proteins. After the protein synthesis requirements are met, all surplus amino acids are oxidized as there is no storage for amino acids. Stable renal transplant patients benefit...

Ethische beoordeling	Niet van toepassing
Status	Anders
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON25890

Bron

NTR

Verkorte titel

POST

Aandoening

protein, metabolism, breath test, oxidation

Ondersteuning

Primaire sponsor: University Medical Center Groningen

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Percentage of given 30 g protein oxidized over 5,5 hours

Toelichting onderzoek

Achtergrond van het onderzoek

Generally, there are two major fates for the amino acids derived from protein ingestion: 1) uptake into amino acid pool thereby being available for protein synthesis and 2) oxidation of excess amino acids. All amino acids that are oxidized, are not incorporated.

For the healthy adult population, a protein intake of 0.8 g/kg bw/day is recommended. However, stable renal transplant patients benefit from a higher protein intake of ≥ 1.1 g protein/kg bw/day, suggesting higher protein requirements. Possible reasons for higher protein requirement could be the chronic use of corticosteroids in renal transplant patients, a low grade inflammatory state, or other. Corticosteroids are used to prevent graft failure, but also have side effects, such as muscle wasting/protein catabolism. Whether protein catabolism is altered in renal transplant recipients however, is unknown.

The question is whether in stable renal transplant patients higher levels of protein catabolism (oxidation) can be measured with the ^{13}C -milk protein breath test, as compared to age-controlled healthy subjects.

Doel van het onderzoek

Ingested protein derived amino acids are used for the synthesis of new proteins. After the protein synthesis requirements are met, all surplus amino acids are oxidized as there is no storage for amino acids. Stable renal transplant patients benefit from a higher protein intake (>1.1 g/kg/day). One of the likely causes is the use of corticosteroids to prevent graft rejection. Corticosteroids lead to loss of lean body mass, which suggests disturbed protein metabolism. We suspect that stable renal transplant patients oxidize more of their ingested proteins compared to healthy controls. To test this hypothesis we will apply a ^{13}C -milk protein breath test to measure whole body protein oxidation by measuring exhaled $^{13}\text{CO}_2:^{12}\text{CO}_2$.

Onderzoeksopzet

3 baseline breath samples before the breath test

t=0 consumption of test drink (30 g milkprotein dissolved in 500 ml water)

33 timepoints: a breath sample is given every 10 minutes, from t=10 to t=330 minutes

Onderzoeksproduct en/of interventie

No intervention is given prior to the breath test

Contactpersonen

Publiek

Hanzeplein 1 UMCG

Gerlof Reckman
Groningen 9713 GZ
The Netherlands
06 57 27 54 11

Wetenschappelijk

Hanzeplein 1 UMCG

Gerlof Reckman
Groningen 9713 GZ
The Netherlands
06 57 27 54 11

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Age 18+

Male

Be able to consume a 500 ml test drink within 5 minutes

Be able to speak the Dutch language

Give written informed consent

Case: received renal transplant >6 months before the study

Stable medication schedule for >2 weeks before the study (e.g. steroid use)

Healthy control: donated kidney >6 months before the study

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Milk (protein) allergy or intolerance

Diabetes

Cancer, except skin cancer

Recreational drug use

Active infection (CRP >10)

Habitual average intake of more than 2 glasses of alcohol per day

Not able to stop alcohol consumption 2 days before the breath test

BMI <20 and >35

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Parallel
Toewijzing:	N.v.t. / één studie arm
Blinding:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland	
Status:	Anders
(Verwachte) startdatum:	01-02-2018
Aantal proefpersonen:	32
Type:	Onbekend

Ethische beoordeling

Niet van toepassing

Soort:

Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 46350

Bron: ToetsingOnline

Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL6707
NTR-old	NTR6877
CCMO	NL63147.042.17
OMON	NL-OMON46350

Resultaten