Bioequivalence study of prednisolone and dexamethasone – The CORE study

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Due to the difference in mineralocorticoid characteristics between prednisolone and dexamethasone, it is hypothesized that dexamethasone will have a greater effect then prednisolone, especially when assessing neurocognitive function and blood…

Ethische beoordeling	Niet van toepassing
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON24470

Bron
Nationaal Trial Register

Verkorte titel
CORE study

Aandoening

N.A.

Ondersteuning

Primaire sponsor: N.A.
Overige ondersteuning: This study is investigator initiated and financed

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The main study endpoint is the difference in total cortisol excretion as measured in 24h-urine at between the lower doses of prednisolone and dexamethasone as well as between and the

higher doses of prednisolone and dexamethasone doses.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale: Corticosteroids are among the most important contributions to the medical field from the last century. Over the years, multiple new synthetic corticosteroids have been development and numerous studies have been performed, uncovering the important and beneficial anti-inflammatory and immunosuppressive characteristics of corticosteroids. Nowadays, corticosteroids are widely used in clinical practice, as their immunosuppressive characteristics are essential in treatment regimens for many chronic diseases, such as auto-immune diseases, lymphatic malignancies, and pulmonary diseases.
Unfortunately, to date, the efficacy data of corticosteroids are based on bioequivalency studies performed in the sixties and seventies of the last century, when randomized controlled trials (RCT) were rarely performed and not yet considered to be the golden standard. Prednisolone and dexamethasone are the two most widely used glucocorticoids. Their bioequivalence are estimated to be 1: 0.15, this is however, based on dated studies. Additionally, clinicians assume that all organ specific effects are similar between the different types of corticosteroids. However, according to recent insight, it could very well be that glucocorticoid sensitivity differs between variable tissues like the immune system, kidney, and brain. This is of importance as many clinicians, prescribe glucocorticoids in a standardized manner assuming that one size fits all. Yet, as there is a lack of modern era studies with a good quality, this is assumption may not be a justified approach.
Objective: The purpose of this study is to compare two different glucocorticoids, prednisolone and dexamethasone at two different doses for their organ specific effects, utilizing modern day standards.
Study design: A randomized, double blind, cross-over clinical trial.
Study population: healthy human adult volunteers including 12 males and 12 females aged 18-75 years old.
Intervention: In random order, subjects will receive 7.5 mg prednisolone for one week, directly followed by 30 mg of prednisolone for one week. After a washout period of 4 weeks (or by exception 8 weeks), subjects will receive 1.125 mg dexamethasone for one week, directly followed by 4.5 mg dexamethasone for one week.
Main study parameters/endpoints: The main study endpoint is the difference in total cortisol excretion as measured in 24h-urine at between the lower doses of prednisolone and dexamethasone as well as between and the higher doses of prednisolone and dexamethasone doses.

Doel van het onderzoek

Due to the difference in mineralocorticoid characteristics between prednisolone and dexamethasone, it is hypothesized that dexamethasone will have a greater effect then prednisolone, especially when assessing neurocognitive function and blood pressure.

Onderzoeksopzet

Duration of participation is 2 months.
Subjects will visit the UMC Groningen six times. Once for a screening visit, when included once for a baseline measurement, and four times for a study visit.

Onderzoeksproduct en/of interventie

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Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. Participants must be healthy with no relevant medical history (e.g. astma, solid organ transplantation, secondary adrenal insufficiency) and no use of medication.
2. Female participants aged <50 years must be using oral contraceptives and female participants age ≥50 years must be in the postmenopausal state
3. Command of the Dutch language
4. Providing written IC

5. BMI between 18.5 and 30 kg/m2
6. Participants must be between 18 and 75 years of age

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Potential participants who are unlikely to adhere to the study protocol (for instance subjects which have a history of substance abuse or non-compliance)
2. Potential participants with a medical history of:
a. Diseases affecting the HPA-axis: e.g. primary and secondary adrenal insufficiency, pituitary tumors, and nightshift workers
b. Diseases affecting the HPG-axis: e.g. Cushing disease.
c. Chronic inflammatory diseases: e.g. rheumatoid arthritis, polymyalgia rheumatic, and asthma
d. Psychiatric diseases
e. Diabetes
3. Shift workers.
4. Potential participants with a kidney function <60 ml/min/1.73m2, abnormalities in liver enzymes, and/or abnormalities in thyroid function
5. Potential participants who are dependent on corticosteroids, e.g. asthmatic patients, and transplant recipients

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Dubbelblind
Controle:	Actieve controle groep

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	01-03-2021
Aantal proefpersonen:	24
Type:	Verwachte startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Niet van toepassing
Soort: Niet van toepassing

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	NL9138
Ander register	METc Groningen : 2020.398

Resultaten