Pharmacokinetic evaluation of a pulmonary administered levodopa dry powder formulation in Parkinson*s disease.

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Movement disorders (incl parkinsonism)
Study type	Interventional

Summary

ID

NL-OMON42667

Source
ToetsingOnline

Brief title
Levodopa dry powder inhalation in patients with Parkinson*s disease.

Condition

- Movement disorders (incl parkinsonism)

Synonym
Parkinsons disease; Parkinson

Research involving
Human

Sponsors and support

Primary sponsor: Martini Ziekenhuis

Source(s) of monetary or material Support: Ministerie van OC&W,Parkinson vereniging

Intervention

Keyword: Dry powder inhalation, Levodopa, Off period, Parkinson's disease

Outcome measures

Primary outcome

Maximum levodopa concentration in plasma (Cmax).

Time to maximum concentration (Tmax).

Area under the concentration time (minutes) curve at 0-180 min (AUC0-180) after administration of the dose (related to the actual dose administered (weighed dose minus remained dose in inhaler after inhalation).

Secondary outcome

Absorption rate constant (Ka) of levodopa after pulmonary administration.

Terminal elimination half life (T1/2el) of levodopa after pulmonary administration.

Decrease of FEV1 in percentage measured by spirometry (at predose, 35 and 100 minutes after administration.

Number of participants with adverse events (both spontaneously reported and reported as a result of questioning by the researcher.

Study description

Background summary

Because of the lack of treatment options with a very rapid onset for Parkinson*s disease patients in the off period, there is a need for the development of rapid onset options to administrate levodopa, like a pulmonary formulation of levodopa, used as rescue therapy. Rescue therapy is used on an

acute, as-needed basis to return patients to an on state when they are experiencing an off state. Rescue therapy aims at a rapid return to an on state in patients with wearing off or patients with early morning akinesia. In a former study, we assessed the applicability of Parkinson's patients to perform an inhalation manoeuvre during an off period. Based on their inspiratory capacities, we developed a levodopa inhaler with levodopa dry powder combination, which seems suitable for use during off periods.

Study objective

The main goal of this study is the pharmacokinetic evaluation of a 30 mg and a 60 mg pulmonary administered levodopa with 2% l-leucine dry powder dose. The results gained with this study which will be used for further optimalisation and dose selection for a next study. Further, this study will gain information about the tolerability of our levodopa formulation when administered via the lungs.

Study design

3 visits
1st visit: lung function testing before and 2 times after inhalation of levodopa, inhalation of 30 mg levodopa, pharmacokinetic analysis of levodopa (for which blood samples will be drawn at 10 time points).

2nd visit: lung function testing before and 2 times after inhalation of levodopa, inhalation of 30 mg levodopa, pharmacokinetic analysis of levodopa (for which blood samples will be drawn at 10 time points).

3rd visit: lung function testing before and 2 times after inhalation of levodopa, intake of own levodopa medication, pharmacokinetic analysis of levodopa (for which blood samples will be drawn at 10 time points).

Intervention

Inhalation of levodopa.

Study burden and risks

Levodopa wordt als stof al vele jaren toegepast bij de ziekte van Parkinson. Alle geincludeerde proefpersonen gebruiken levodopa. Na inhalatie zijn de te verwachten systemische bijwerkingen van levodopa vergelijkbaar met de bijwerkingen na orale toediening. Op dit gebied is er voor de proefpersoon geen extra belasting. Omdat niet bekend en niet in te schatten is wat de reactie van de longen op de toediening van levodopa is, wordt bij deze studie de FEV1/FVC van de patient intensief gemonitord en vindt intensieve samenwerking met de longarts plaats. Hiertoe wordt een eenvoudige, weinig belastbare longfunctie

test gebruikt.
Het afnemen van bloed zal via een tap systeem gebeuren, zodat de patient per bezoek maar 1 maal geprikt hoeft te worden en de overige 9 maal bloed uit het systeem gehaald kan worden.
Dit onderzoek is alleen uitvoerbaar in deze patiëntencategorie. Voor de doorontwikkeling van een geschikt inhalatie preparaat met levodopa voor gebruik bij de ziekte van Parkinson zijn de gegevens die worden verkregen uit dit onderzoek noodzakelijk.

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

- Signed informed consent.;- Diagnosed with Parkinson*s disease;- At least 18 years old. ;- Currently on stable Parkinson*s disease levodopa regimen.;- Require levodopa containing

medication regimen with a maximum of 4 administrations a day.;- Able to perform spirometry.

Exclusion criteria

- Cognitive dysfunction, which precludes good understanding of instructions and/or informed consent.;- Pregnant or breast feeding.;- Active pulmonary disease. ;- Patients with known symptomatic orthostatic hypotension.;- The use of COMT inhibitors and/or MAO-B inhibitors.

Study design

Design

Study phase:	2
Study type:	Interventional
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	10-10-2016
Enrollment:	8
Type:	Actual

Medical products/devices used

Product type:	Medicine
Brand name:	Sinemet / Madopar
Generic name:	Levodopa

Ethics review

Approved WMO

Date:	05-08-2015
Application type:	First submission
Review commission:	RTPO, Regionale Toetsingscie Patientgebonden Onderzoek (Leeuwarden)
Approved WMO Date:	24-09-2015
Application type:	First submission
Review commission:	RTPO, Regionale Toetsingscie Patientgebonden Onderzoek (Leeuwarden)

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
EudraCT	EUCTR2015-002992-11-NL
CCMO	NL54225.099.15