Articulation and Coordination of Speech in Parkinson*s Disease

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To investigate the timing and coordination of speech articulation of PD patients. This information will lead to a better understanding of dysarthria and will ultimately aid speech therapy.

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

Summary

ID

NL-OMON45931

Source
ToetsingOnline

Brief title
Articulation and Coordination of Speech in PD

Condition

- Movement disorders (incl parkinsonism)

Synonym
Parkinson's disease

Research involving
Human

Sponsors and support

Primary sponsor: Rijksuniversiteit Groningen
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: articulation, dysarthria, Parkinson's disease, speech

Outcome measures

Primary outcome

The main study endpoints parameters are:

- Displacement of the tongue tip, the tongue body, the lips and the jaw at consonant and vowel targets.
- Velocity of tongue of the tongue tip, the tongue body, the lips and the jaw at key landmarks of speech gestures.
- Duration of speech gestures produced with of the tongue tip, the tongue body, the lips and the jaw.
- Speech rate (syllables/min and words/min).

Secondary outcome

The secundary study endpoints parameters are:

- F1 and F2 formant measures during the production of vowels (acoustic)
- Intensity of the speech signal during the production of stops (acoustic)

Study description

Background summary

Due to a loss of dopaminergic cells in the substantia nigra, persons who are diagnosed with Parkinson*s Disease (PD) have movement difficulties. As speech requires subtle motor movements and muscle coordination, it is commonly found to be affected in PD. This speech disorder, known as hypokinetic dysarthria, can lead to severe communication problems that affect the quality of life of patients. Symptoms of hypokinetic dysarthria are, amongst others, monopitch,

reduced variation of pitch, monoloudness, unclear articulation and untypical coordination. In this study, we will specifically investigate consequences at the articulatory level of speech (e.g., imprecise production of consonants). We hypothesize that PD patients show deviant speech kinematics in comparison to a group of non-speech disturbed controls. More specifically, based on previous acoustic studies, we hypothesize that the displacement of the articulators will be reduced for the PD group and that the coordination of articulatory movements will deviate from the coordination as observed in non-speech disturbed controls.

Study objective

To investigate the timing and coordination of speech articulation of PD patients. This information will lead to a better understanding of dysarthria and will ultimately aid speech therapy.

Study design

Subjects will answer to questions from the SCOPA-COG and perform several speech tasks. During these tasks, articulatory trajectories will be recorded using both electromagnetic articulography (EMA) and ultrasound tongue imaging (UTI). The data from the PD patients will be compared to the data from non-speech disturbed controls.

Study burden and risks

No known risks or benefits are associated with participation in this study.

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

- At least 18 years of age
- Mother tongue speaker of Dutch;Only for the PD group:
- Diagnosed with idiopathic Parkinson*s disease (according to the UK Parkinson*s Disease Society Brain Bank Clinical Diagnostic Criteria)

Exclusion criteria

- Older than 80 years of age
- A score of 2 or higher on part 1.1 (cognitive impairment) or part 1.2 (hallucinations and psychosis) of the UPDRS
- History of neurological or psychological disorders
- Self-reported signs of depression
- Self-reported swallowing problems
- Stuttering or other speech and language problems
- Non removable metal on, in or close to the head (e.g., piercings, dental braces, medical devices such as deep brain stimulation electrodes)

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other

Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	25-04-2019
Enrollment:	60
Type:	Actual

Ethics review

Approved WMO

Date:	19-07-2018
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

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	NL66063.042.18