

Clinical study of medical devices for quantifying and/or classifying motor deficits in patients with Parkinson's disease or essential tremor - Clinical study for ANLIVA™ Dyskinesia & ANLIVA™ Eye Movement

Submission date 01/12/2023	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
Registration date 14/12/2023	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
Last Edited 28/10/2024	Condition category Nervous System Diseases	<input type="checkbox"/> Individual participant data
		<input checked="" type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

This study aims to see if medical devices can be used for quantifying and/or classifying motor deficits in patients with Parkinson's disease and essential tremor.

Who can participate?

Patients diagnosed with Parkinson's disease or essential tremor and healthy control volunteer control subjects aged between 18 and 80 years old

What does the study involve?

The study involves measurements/data acquisition of motor deficits with a smartphone of ocular movements by using an advanced tracking camera device in combination with a computer.

What are the possible benefits and risks of participating?

The possible benefits include making an objective quantification and/or classification of tremor /hyperkinesia and an objective quantification of ocular movements.

The methods used in the study do not use any physical interventions, but the eye-tracking camera could be perceived as an intrusion of privacy.

Where is the study run from?

Uppsala University Hospital and Sahlgrenska University Hospital (Sweden)

When is the study starting and how long is it expected to run for?

August 2022 to October 2023

Who is funding the study?

1. VINNOVA Swedish Governmental Agency for Innovation Systems (Sweden)
2. Stardots AB (Sweden)

Who is the main contact?

Martin Nilsson (Stardots AB), martin.nilsson@stardots.se (Sweden)

Contact information

Type(s)

Public, Scientific

Contact name

Dr Martin Nilsson

Contact details

Kungsangsvagen 31A

Uppsala

Sweden

SE-753 23

+46(0)707799295

martin.nilsson@stardots.se

Type(s)

Principal Investigator

Contact name

Prof Dag Nyholm

Contact details

Akademiska sjukhuset

Uppsala

Sweden

SE 751 85

+46(0)18-611 00 00

dag.nyholm@neuro.uu.se

Type(s)

Principal Investigator

Contact name

Prof Filip Bergquist

Contact details

Sahlgrenska Academy

University of Gothenburg

Gothenburg

Sweden

SE-413 45
+46(0)31-342 10 00
filip.bergquist@pharm.gu.se

Additional identifiers

EudraCT/CTIS number

Nil known

IRAS number

ClinicalTrials.gov number

Nil known

Secondary identifying numbers

DOC-303

Study information

Scientific Title

Patients with tremor or hyperkinesia or with ocular motor deficits such as e.g. patients with Parkinson's disease or essential tremor.

Measurement/ quantification of tremor or hyperkinesia using the mobile sensors of a Smartphone or of eye movements by using an advanced tracking camera device in combination with a computer

No comparator

Complications/adverse events and statistics of such; Correlation and accuracy of quantification of tremor or hyperkinesia or correlation and accuracy of the eye movements.

Study objectives

Is it possible to use medical devices ANLIVA™ Dyskinesia and/or ANLIVA™ Eye Movement to quantify and/or classify motor deficits in patients with Parkinson's disease or essential tremor?

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 20/02/2023, Gothenburg Department 1 Medicine (Box 2110, Uppsala, SE-75002, Sweden; +46(0)10-4750800; registrator@etikprovning.se), ref: CIV-ID 22-11-041486

Study design

Double-center open-label controlled exploratory pilot stage study

Primary study design

Observational

Secondary study design

Case-control study

Study setting(s)

Hospital

Study type(s)

Other, Safety

Participant information sheet

Not available in web format, please use contact details to request a participant information sheet.

Health condition(s) or problem(s) studied

Parkinson's disease and essential tremor

Interventions

This exploratory pilot study aims to assess mathematical algorithms' performance using smartphone sensor data and eye tracking in individuals with Parkinson's disease and essential tremor. The study involves using a medical device that will not impact participants physically. Data collected from the device will be compared to assessments conducted by a qualified medical professional (Neurologist) to evaluate the accuracy and reliability of the algorithms in measuring and correlating relevant data.

The subjects participate in one visit, which takes less than one hour per visit. The sessions are held at healthcare institutions and neurological clinics at two university hospitals.

The participants are asked in advance if they are willing to participate with a description of what is needed, they then book a date for when to visit the clinic, visit the clinic and sign the informed consent. They are given the info from the Patient Information Sheet and will do the following tests: i) move a mobile phone from table to ear and back to table position 3 times with each hand; ii) sit down in front of a computer and look at moving dot on the computer screen and an advanced camera records the eye movements; and, iii) have an assessment of their status by health care personnel. No intervention is done, i.e. no change in any medication nor anything else that changes the medical state the subject is in. The test with a mobile phone takes less than a minute. The test when looking at a computer screen takes 2 minutes.

ANLIVA™ Dyskinesia measures movement disturbances from a "perfect" trajectory and uses sensors in the mobile phone (accelerometers, gyroscope etc) to get the deviation.

ANLIVA™ Eye Movement measures eye movements, more specifically how the pupil moves when the subject is looking at the moving dot on the screen. It is not easy to say exactly what is measured, but in one way it is the angle difference the camera is detecting or the distance the eye has rotated relative to the face.

Intervention Type

Device

Pharmaceutical study type(s)

Not Applicable

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

ANLIVA™ Dyskinesia, ANLIVA™ Eye Movement

Primary outcome measure

1. Movement disorder of hands measured using sensors in a mobile smartphone when the subject moves the mobile phone in a certain pattern, for approx. 1 minute during a visit to the clinic under supervision by healthcare personnel. This is for the ANLIVA™ Dyskinesia.
2. Movement disorder of eyes measured using an advanced camera when the subject looks at a computer screen and follows how a pattern moves on a computer screen, for approx. 2 minutes during a visit to the clinic under supervision by healthcare personnel. This is for the ANLIVA™ Eye Movement.

Secondary outcome measures

The following secondary outcome measures are measured using data recorded during the clinic visit:

1. Correlate the result of tremor and hyperkinesia detection with a neurologist assessment
2. Accuracy of classification between ET- and PD-induced tremor or hyperkinesia
3. Receiver Operating Characteristic (ROC) curve analysis
4. Accuracy of classification
5. Receiver Operating Characteristic (ROC) curve analysis

Overall study start date

01/08/2022

Completion date

01/10/2023

Eligibility

Key inclusion criteria

1. Patients already diagnosed with PD or ET or Healthy volunteers
2. Able to understand and sign the informed consent.

Participant type(s)

Healthy volunteer, Patient

Age group

Mixed

Lower age limit

18 Years

Upper age limit

80 Years

Sex

Both

Target number of participants

80

Total final enrolment

52

Key exclusion criteria

1. No signing of the informed consent
2. Below 18 years of age
3. Involvement in the planning and conduct of the clinical investigation (applies to all Stardots management staff, investigational staff and third-party vendors as applicable).

Date of first enrolment

15/03/2023

Date of final enrolment

01/09/2023

Locations

Countries of recruitment

Sweden

Study participating centre

Uppsala University Hospital, Uppsala, Sweden

Akademiska sjukhuset, Uppsala

Uppsala

Sweden

75185

Study participating centre

Sahlgrenska University Hospital, Gothenburg, Sweden

Sahlgrenska Universitetssjukhuset, Göteborg.

Gothenburg

Sweden

41345

Sponsor information

Organisation

Stardots AB

Sponsor details

Kungsangsvagen 31A

Uppsala

Sweden

SE-753 23
+46 (0)707-827001
daniel.petrini@stardots.se

Sponsor type
Industry

Website
<https://stardots.se/>

Funder(s)

Funder type
Industry

Funder Name
Stardots AB

Funder Name
VINNOVA

Alternative Name(s)
Swedish Governmental Agency for Innovation Systems, Vinnovase

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Sweden

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer reviewed journal

Intention to publish date
31/03/2025

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Martin Nilsson (Stardots AB), martin.nilsson@stardots.se (Sweden). Data will be shared data with principal investigators. Investigators may share participant data with participants as the sponsor is unaware of who the participants are.

IPD sharing plan summary

Available on request