DNA diagnostics in Congenital Stationary Nightblindness (CSNB).

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Ethical review	Approved WMO
Status	Pending
Health condition type	Eye disorders congenital
Study type	Observational invasive

Summary

ID

NL-OMON35547

Source
ToetsingOnline

Brief title
DNA diagnostics in Congenital Stationary Nightblindness.

Condition

- Eye disorders congenital
- Congenital eye disorders (excl glaucoma)

Synonym
congenital stationary nightblindness, nightblindness

Research involving
Human

Sponsors and support

Primary sponsor: Bartimeus
Source(s) of monetary or material Support: ODAS

Intervention

Keyword: congenital stationary nightblindness

Outcome measures

Primary outcome

To study the correlation between the genotype and the fenotype (clinical

symptoms) of CSNB patients.

Secondary outcome

To find yet undiscovered genes responsible for the disorder CSNB.

Study description

Background summary

Congenital stationary night blindness (CSNB) is a group of retinal disorders that causes variable problems at night, variable reduced visual acuity and often refractive errors. CSNB is caused by defective transfer of signals from photoreceptors (rods and cones) to bipolar cells, the junction cells of the retina. Diagnoses are based on clinical symptoms and the Electroretinogram (ERG), a method that records the electrical activity of the retina during the exposure to variable light intensities. The distinctive ERG of a CSNB patient shows the dysfunction of the signal transfer to bipolar cells. Two types of CSNB can be distinguished: the *complete* and *incomplete* form, also known as CSNB1 and CSNB2 respectively. CSNB1 is characterized by the complete absence of rod pathway function, for CSNB2 both rod and cone pathways functions are impaired. The clinical symptoms of the two groups are clearly different.

Mutations in the NYX gene cause CSNB1 and mutations in the CACNA1F gene cause CSNB2. These X-linked genes were identified approximately 10 years ago. Recently, four autosomal recessive genes have been identified that can cause CSNB. Mutations in the GRM6 gene or the TRPM1 gene cause CSNB1 and mutations in the CABP4 gene or the CACNA2D4 gene cause CSNB2. It is probable that there are more undiscovered genes that can cause CSNB when a mutation is present.

CSNB is a congenital disorder and visual functions change little during live. CSNB patients usually have impaired visual acuity en severe refractive errors. As the name suggests, night blindness is one of the symptoms, photophobia is another. The variation in clinical symptoms (visual acuity, refractive error,

night blindness, photophobia, colour vision, nystagmus, strabismus, ERG amplitude, threshold of dark adaptation) varies between CSNB1 and CSNB2 but also between patients with the same mutated gene or even with the same mutation. Because little is known about the variable expressions of CSNB, the diagnosis may be missed.

Study objective

The purpose of this study is to investigate the genotype of a large group of CSNB patients for which the phenotype is already known. We hope to increase our understanding of CSNB in order to improve diagnosis, to offer more realistic prognoses and to gain more scientific background for revalidation. If in some CSNB patients no mutations can be found in the known genes, the study will be extended to find yet undiscovered genes that cause the disorder.

Study design

CSNB patients and, if necessary, non affected family members will undergo a blood test. Therefore, 20 ml of blood will be collected at a local hospital.
The DNA tests will be executed at the Netherlands Institute for Neuroscience.
The clinical symptoms of each patient were investigated during regular examination at the department of ophthalmology of Bartiméus.

Study burden and risks

Patients and non affected family members will be asked to undergo a blood test for which 20 ml of blood will be taken. This can take place at a local GP laboratory or a nearby hospital. Therefore, the strain and risk are minimal. We also include children and adolescents in this study because they form a large group within the total group of CSNB patients. Thanks to the increasing knowledge and expertise with regard to CSNB, correct diagnoses are made more often especially in children and adolescents.

Contacts

Public
Bartimeus

Utrechtseweg 84
3702 BA Zeist
NL
Scientific
Bartimeus

Utrechtseweg 84
3702 BA Zeist
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Children (2-11 years)
Elderly (65 years and older)

Inclusion criteria

Patients who are diagnosed with CSNB based on ERG (electroretinogram) and DA (dark adaptation curve) measurements and never underwent a DNA test, plus none affected familiemembers

Exclusion criteria

none

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled

Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-05-2010
Enrollment:	300
Type:	Anticipated

Ethics review

Approved WMO

Application type:	First submission
Review commission:	METC Amsterdam UMC

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	NL28209.018.10