Measuring TMPRSS6 expression to clarify genetic diagnosis in IRIDA

Published: 23-05-2016
Last updated: 20-04-2024

(Primary) Determine whether measuring the expression level is a good functional test for confirming the genetic diagnosis in IRIDA by establishing the relation between the TMPRSS6 mRNA expression and the phenotype in IRIDA patients and their family…

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Anaemias nonhaemolytic and marrow depression
Study type	Observational invasive

Summary

ID

NL-OMON43293

Source
ToetsingOnline

Brief title
Measuring TMPRSS6 expression in IRIDA

Condition

- Anaemias nonhaemolytic and marrow depression
- Metabolic and nutritional disorders congenital
- Iron and trace metal metabolism disorders

Synonym
blood deficiency insenstive to oral iron treatment, iron-refractory iron deficiency anemia

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universitair Medisch Centrum
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: anemia, expression, heterozygous, iron

Outcome measures

Primary outcome

The correlation between the relative amount of TMPRSS6 mRNA expression in EBV

immortalized lymphoblasts and the IRIDA phenotype.

Secondary outcome

The correlation between the relative amount of TMPRSS6 mRNA expression in EBV

immortalized lymphoblasts and the TMPRSS6 genotype.

Study description

Background summary

Iron-refractory iron deficiency anemia (IRIDA) is generally considered to be an autosomal recessive congenital disorder. However, some patients with only a mono-allelic TMPRSS6 defect also show an IRIDA phenotype, while other heterozygotes stay healthy. Even within families, there is not always a clear genotype-phenotype correlation. Possibly, due to influences of other genetic factors, the expression of TMPRSS6 may vary between people, even when they have the same TMPRSS6 genotype. We hypothesize that the TMPRSS6 expression level is related to the presence and the severity of the IRIDA phenotype. If this is true, testing the expression level may be used in diagnosis, especially in case of heterozygosity.

Study objective

(Primary) Determine whether measuring the expression level is a good functional test for confirming the genetic diagnosis in IRIDA by establishing the relation between the TMPRSS6 mRNA expression and the phenotype in IRIDA patients and their family members.
(Secondary) Get more insight into the role of additional genetic factors in causing IRIDA by determining the relation between the TMPRSS6 mRNA expression and the TMPRSS6 genotype in IRIDA patients and their family members.

Study design

Invasive observational study. We use EBV-immortalized lymphoblast cell lines to determine TMPRSS6 expression and medical data to determine IRIDA phenotype and genotype of subjects.

Study burden and risks

A total of 11 ml blood will be collected from all subjects by a single venipuncture. Venipuncture is a routine procedure with minimal burden and risks. Results from earlier laboratory tests and physical examination will be used as well. Since the study is observational, there will be no direct benefits for subjects. However, the results will provide new insight into the pathophysiology of IRIDA and may improve the diagnosis of IRIDA, especially in case of a heterozygous TMPRSS6 defect. This can also be relevant for the subjects.

Contacts

Public
Radboudumc

Geert Grooteplein 10
Nijmegen 6525 GA
NL
Scientific
Radboudumc

Geert Grooteplein 10
Nijmegen 6525 GA
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

- Living in the Netherlands
- Be diagnosed with IRIDA or have a family member who is diagnosed with IRIDA
- Earlier described by Donker et al. (unpublished data)

Exclusion criteria

- Previously diagnosed with chronic liver, kidney or inflammatory disease
- CRP * 10
- < 18 years old

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	23-05-2016
Enrollment:	19
Type:	Actual

Ethics review

Approved WMO

Date:	23-05-2016

Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	11-08-2016
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

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	NL56996.091.16