Diagnostic value of array-based genotyping in autoinflammatory syndromes

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Objective: The primary objective of this study is to investigate the potential of the custom global screening array (GSA) in patients with autoinflammatory disorders. We aim to investigate whether the GSA can pick up genetic variants in genes known...

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

Summary

ID

NL-OMON53916

Source
ToetsingOnline

Brief title
Array-based genotyping in autoinflammation (arrAID)

Condition

- Immune system disorders congenital
- Immunodeficiency syndromes

Synonym
Autoinflammatory disorders, Periodic fever syndromes

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: ImmunAID Horizon 2020

Intervention

Keyword: DNA analysis, Genotyping array, Hereditary Autoinflammatory Diseases

Outcome measures

Primary outcome

Main study parameters/endpoints: The primary endpoint of this study is the diagnostic yield of the GSA. We defined the diagnostic yield as the percentage of patients in which the GSA is able to find a pathogenic genetic defect that fits the clinical phenotype. We will use this measurement to interpret the potential of the GSA as a potential future in vitro diagnostic test.

Secondary outcome

Secundary study parameters/endpoints: The incidental findings by GSA will be documented.

Study description

Background summary

Rationale: Autoinflammatory syndromes are rare immunological disorders. More than forty distinct syndromes have been described in literature. These patients present with episodes of recurrent fever and other symptoms, and are usually asymptomatic between attacks. During diagnostic work-up, there is no evidence of infection or auto-immune disease. Most syndromes have a genetic background and are caused by specific genetic mutations in genes that cause dysregulation in the innate immune system. Genetic testing is crucial to acquire a diagnosis and select an appropriate treatment. Unfortunately, genetic testing is expensive and time consuming and therefore not widely available in developing countries. Previously, we developed an genotyping array to screen for pathogenic mutation in primary immunodeficiency disorders (PID). Genotyping arrays are cheap and have a rapid turn-around time and can therefore be used as a first screening to limit the use of expensive genetic testing. Theoretically, this technique and strategy can be applied to all diagnostic conditions. In this research, we focus on patients suffering from an autoinflammatory disorder and aim to investigate whether array-based genotyping approaches have the

potential to pick up genetic variants, and could be used as a first screening tool in future for autoinflammatory patients.

Study objective

Objective: The primary objective of this study is to investigate the potential of the custom global screening array (GSA) in patients with autoinflammatory disorders. We aim to investigate whether the GSA can pick up genetic variants in genes known how many patients with autoinflammatory disease could potentially be diagnosed with the use of the GSA and the genetic incidental findings by GSA. This research is a preliminary pilot study to investigate whether the GSA has the potential to be developed in the future into a in-vitro diagnostic.

Study design

Study design: Single-center diagnostic accuracy cross-sectional pilot study.

Study burden and risks

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: In this research, there will be a minimal burden for the patients. There will be no risk associated with participation. During a regular blood draw to monitor the disease an extra tube of blood will be drawn from which DNA will be isolated. This research will help to add to our knowledge about array-based genotyping in rare genetic diseases, specifically autoinflammatory disorders. If this technique shows positive results, in the future one can perform larger studies to investigate the diagnostic value of array-based genotyping in autoinflammatory disorders and improve our diagnostic approach.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Inclusion criteria

- Adult (>18 years)
- Competent
- Informed consent
- Diagnosed with an autoinflammatory syndrome
- Known genetic defect, which has been found with conventional genetic testing

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):	01-01-2023
Enrollment:	21
Type:	Anticipated

Medical products/devices used

Generic name:	Infinium® Global Screening Array-24 v1.0
Registration:	No

Ethics review

Approved WMO

Date:	28-02-2023
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

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	NL80770.078.22