Researching trained immunity in SLE patients

Published: 26-06-2023
Last updated: 30-11-2024

In this study, therefore, we aim to investigate how trained immunity is systemically regulated in SLE patients and how the degree of trained immunity affects disease activity and severity. A better understanding of these processes contributes to the...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Autoimmune disorders
Study type	Observational invasive

Summary

ID

NL-OMON53281

Source
ToetsingOnline

Brief title
TACTIC-SLE

Condition

- Autoimmune disorders

Synonym
Systemic lupus erythematosus; lupus

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: innate immune cells, SLE, trained immunity

Outcome measures

Primary outcome

1. What are the differences in the transcriptome of circulating monocytes from SLE patients when the disease is in remission or when the disease is active (flares), and how does this differ with the transcriptome of circulating monocytes from healthy individuals?

2. What are the differences in the epigenome of circulating monocytes from SLE patients when the disease is in remission or when the disease is active (flares), and how does this differ with the epigenome of circulating monocytes from healthy individuals?

3. What are the differences in the cytokine response of circulating monocytes from SLE patients when the disease is in remission or when the disease is active (flares), and how does this differ with the response of circulating monocytes from healthy individuals?

Secondary outcome

1. Are there correlations between the trained immunity profile of circulating monocytes (identified by transcriptome, epigenetics, and cytokine response) and the degree of current disease activity in clinical variables of SLE patients?

2. Are there correlations between the trained immunity profile of circulating

monocytes (identified on the basis of the transcriptome, epigenetics, and cytokine response) and the risk of the occurrence of flares in the future.

3. Are there correlations between the trained immunity profile of circulating monocytes (identified based on the transcriptome, epigenetics, and cytokine response) and inflammatory markers in the blood.

Study description

Background summary

Systemic lupus erythematodes is an autoimmune disease that can affect several organs, including the kidney. Many patients develop lupus nephritis, which can result in kidney failure. For this group of patients, dialysis or a kidney transplant is the only option. Patients with SLE are treated with immunosuppressive medications, including hydroxychloroquine, corticosteroids, mycophenolate mofetil and cyclophosphamide. However, these medications inhibit the immune system aspecifically and can have serious side effects.
The reason why SLE develops in some people is unclear, nor is there yet a good SLE-specific treatment. SLE is characterized by dysfunction in processing dead (apoptotic) cellular material and loss of immunological tolerance to nuclear antigens. The main source of these extracellular antigens are apoptotic microparticles (MP) and "neutrophil extracellular traps" (NETs).
Studies on the immunological mechanisms leading to SLE are mainly focused on the adaptive immune system, because T and B cells play an important role in antibody formation against nuclear antigens, which is characteristic of SLE. However, cells of the nonspecific immune system (monocytes, macrophages and dendritic cells) also play an important role in SLE although less research has been done on these. These cells are activated by MPs and NETs. Previous observations have shown that these cells in SLE patients are much more sensitive to activation by MPs and NETs compared with cells from healthy individuals. In addition, these cells have been shown to be much more active in SLE patients than in healthy individuals. The activation of these cells contributes significantly to the tissue damage that occurs when there is disease activity from SLE (a "flare").
In this study, we are investigating trained immunity in SLE patients. Trained immunity is a form of memory of innate immune cells, which causes increased inflammatory activity upon stimulation. Our hypothesis is that trained immunity may lead to activation of the immune response in SLE patients and contribute to

the disease flare.

Study objective

In this study, therefore, we aim to investigate how trained immunity is systemically regulated in SLE patients and how the degree of trained immunity affects disease activity and severity. A better understanding of these processes contributes to the discovery of new targets for therapy for SLE patients.

Study design

This is a clinical observational study.

Study burden and risks

This is an observational study in which participants complete a questionnaire, have their blood pressure measured and donate body fluids (urine and blood), In our view, there are no risks associated with this. The burden for participation in this study is minimal and consists of a 1-hour visit to our outpatient clinic.

Contacts

Public
Radboud Universitair Medisch Centrum

Geert Grooteplein Zuid 10
Nijmegen 6525 GA
NL
Scientific
Radboud Universitair Medisch Centrum

Geert Grooteplein Zuid 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

Age between 18 and 70 years old.
Positive SLE diagnosis.

Exclusion criteria

Lack of informed consent
Current infection
CKD stage 5 or dialysis
Pregnancy
Active cancer

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	08-02-2024
Enrollment:	100
Type:	Actual

Ethics review

Approved WMO Date:	26-06-2023
Application type:	First submission
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	NL84023.091.23