Vaccination of older persons against Sars-Cov-2 and cellular immunogenicity for long term protection (participating in the Doetinchem Cohort Study)

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Ethical review	Approved WMO
Status	Completed
Health condition type	Other condition
Study type	Observational invasive

Summary

ID

NL-OMON54152

Source
ToetsingOnline

Brief title
VOCAAL

Condition

- Other condition
- Viral infectious disorders

Synonym
corona, prevention

Health condition

Immuunsysteem

Research involving
Human

Sponsors and support

Primary sponsor: RIVM
Source(s) of monetary or material Support: Ministerie VWS/het RIVM

Intervention

Keyword: immunity and corona, Vaccination

Outcome measures

Primary outcome

The primary endpoints are vaccine-specific (Spike-protein-specific) antibody levels in serum, functional T-cell responses and memory B-cell immunity at a month following the second SARS-CoV-2 vaccination.

Secondary outcome

The secondary aims are to address the function and longevity of the antibody responses following vaccination (which includes IgG avidity maturation, Ig isotype differentiation, local mucosal immunity (IgA and IgG) in nose or saliva and virus neutralization against prevailing SARS-Cov-2 viruses), and in-depth cellular (B/T) immunity in the long term. In addition, the possible effects of a past SARS-Cov-2 infection on vaccine response will be determined by measuring serum antibodies to SARS-CoV-2 virus core proteins. Vaccine responses will be related to age and frailty. Altogether, this will provide better insight in the immune responsiveness and immune protection of older persons and ways to improve vaccination strategies within this specific age group to protect them from severe SARS-CoV-2 disease.

Exploratory endpoints: Numbers of immune cells and serological biomarkers as well as composition of gut microbiome before vaccination will be assessed. These are potential predictors, alone or in combination with frailty, of antibody responses to vaccination.

Study description

Background summary

Vaccination against SARS-CoV-2 is the most effective way to end the current pandemic, although systemic immune responses induced by the various vaccines may vary considerably in amplitude, longevity and quality per person. In addition, with ageing there is a decline in the functioning of the immune system, making older people more vulnerable to infections and prone to lower responses to vaccination. We will assess the induction of immune responses to vaccination in older men and women of 64-90 years of age. In addition we will investigate whether age, and frailty or underlying lingering inflammation in these individuals might underly lower immune responses to the SARS-CoV-2 vaccines.
To study this, we will capitalize on the infrastructure and data provided by the ongoing longitudinal Doetinchem Cohort Study (DCS) (NL63779.041.17). In particular, we will build on a sub study done in 2016/2017, named Immune System and Ageing (ISA), in which a frailty index, an extensive phenotyping of cells and the concentration of inflammatory markers have been documented per person in a subcohort of the DCS. Because of the availability of these data the ISA/DCS subcohort provides a unique opportunity to further study immune function by assessing SARS-CoV-2 vaccine immunogenicity in older persons.

Study objective

The primary objective is to assess quantitative antibody responses and functional T-cell and memory B-cell responses to SARS-CoV-2 vaccines in blood of older individuals 64-90 years of age at 28 days after the second vaccination. These response will be compared with those in younger age groups (NL76440.041.21).

Study design

Longitudinal observational study.

Study burden and risks

The burden associated with participation involves collection of blood samples by both venapunction performed by a research nurse (T2 and T4) and by fingerpricks (T0, T1 and T3) performed by the participant at home. Mucosal lining fluid (MLF) will be sampled or saliva will be collected by a research nurse (T2 and T4). In addition, participants will be asked to fill in a brief questionnaire at each timepoint. They will also be asked to collect one stool sample before vaccination, which is optional. In case of a SARS-CoV-2 booster vaccination, participants will be invited to participate in an extension of the study consisting of 3 additional venipuncture blood samples, 1 additional finger prick blood sample, 3 additional nasal mucosal lining fluid samples and 4 additional questionnaires. The potential risks of blood sampling are considered minimal. The results of the study may contribute to a better control of SARS-CoV-2 disease in older persons.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Elderly (65 years and older)

Inclusion criteria

• Having participated the ISA study (part of the Doetinchem Cohort Study).
• Willing to receive the SARS-CoV-2 vaccine.
• Willing to give the Informed Consent.

Exclusion criteria

A potential subject will be excluded from participation in this study when a person already received the second primary SARS-CoV-2 vaccination more than a month earlier and has not signed the ICF at T0, T1 or T2.

Study design

Design

Study phase:	4
Study type:	Observational invasive
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Completed
Start date (anticipated):	26-03-2021
Enrollment:	160
Type:	Actual

Medical products/devices used

Product type:	Medicine
Brand name:	SARS-CoV-2 vaccine

Ethics review

Approved WMO Date:	11-03-2021
Application type:	First submission
Review commission:	METC NedMec
Approved WMO Date:	27-05-2021
Application type:	First submission
Review commission:	METC NedMec
Approved WMO Date:	19-08-2021
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	26-10-2021
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	29-10-2021
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	09-03-2022
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	10-05-2023
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	19-05-2023
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	16-08-2023

Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	30-08-2023
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	04-10-2024
Application type:	Amendment
Review commission:	METC NedMec
Approved WMO Date:	18-10-2024
Application type:	Amendment
Review commission:	METC NedMec

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
Other	2021-002363-22
EudraCT	EUCTR2021-002363-22-NL
CCMO	NL76719.041.21