

Preventative treatment for patients at risk of COVID-19 infection (PROTECT)

Submission date 24/04/2020	Recruitment status No longer recruiting	☒ Prospectively registered ☒ Protocol
Registration date 14/05/2020	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 26/06/2026	Condition category Infections and Infestations	☐ Individual participant data

Plain English summary of protocol

Background and study aims

COVID-19 is a condition caused by the coronavirus (called SARS-CoV-2) that was first identified in late 2019. This virus can infect the respiratory (breathing) system. Some people do not have symptoms but can carry the virus and pass it on to others. People who have developed the condition may develop a fever and/or a continuous cough among other symptoms. This can develop into pneumonia. Pneumonia is a chest infection where the small air pockets of the lungs, called alveoli, fill with liquid and make it more difficult to breathe.

In 2020, the virus has spread to many countries around the world and neither a vaccine against the virus or specific treatment for COVID-19 has yet been developed. As of March 2020, it is advised that people minimize travel and social contact, and regularly wash their hands to reduce the spread of the virus.

Groups who are at a higher risk from infection with the virus, and therefore of developing COVID-19, include people aged over 70 years, people who have long-term health conditions (such as asthma or diabetes), people who have a weakened immune system and people who are pregnant. People in these groups, and people who might come into contact with them, can reduce this risk by following the up-to-date advice to reduce the spread of the virus.

Currently, there are no drugs proven to treat or delay the progression of COVID-19 and no vaccine is yet available. Efforts are underway to repurpose established drugs with well-understood drug interactions and safety profiles. A number of clinical trials have been established at great speed following the onset of the pandemic, but none of these is enrolling participants with significantly reduced kidney function and/or receiving certain kinds of immunosuppressive medicines such as solid organ transplant recipients. Patients receiving in-centre dialysis are at extremely high risk from COVID-19, particularly as they are unable to self-isolate.

The PROTECT trial aims to enrol patients at particularly high risk of COVID-19 and its complications (such as kidney dialysis patients, vasculitis, and transplant patients), seeking to test treatments that either might prevent the disease from occurring or may reduce the number of cases where the disease becomes serious or life-threatening.

Dialysis is a procedure to remove waste products and excess fluid from the blood when the kidneys stop working properly. It often involves diverting blood to a machine to be cleaned.

Vasculitis is inflammation of blood vessels. It causes changes in the blood vessel walls, including thickening, weakening, narrowing or scarring. These changes can restrict blood flow, resulting in organ and tissue damage.

Organ transplantation is a medical procedure in which an organ is removed from one body and placed in the body of a recipient, to replace a damaged or missing organ. Transplant recipients must take medication to suppress the immune system which puts them at risk of infection.

Who can participate?

Adults over 18 years, in a vulnerable population (dialysis, vasculitis, or transplant) patients with no symptoms of or confirmed COVID-19 diagnosis.

What does the study involve?

Patients will be randomised to receive either oral hydroxychloroquine (HCQ) or standard care. HCQ is a widely used anti-malarial drug which has an effect on the immune system and may as an anti-viral agent in this setting.

The PROTECT study has been designed to place the minimum burden on patients, and on the healthcare workers looking after them at this time. They will not have to attend the hospital for any extra study visits but will be asked to complete follow-up questionnaires. There is also a small chance that they may experience one of the side effects of HQC listed in the patient information sheet.

What are the possible benefits and risks of participating?

There is no guarantee that patients will benefit from taking part in this trial. They may be protected from COVID-19 by HCQ, Niclosamide, but it is also possible that HCQ may not protect them from COVID-19. The researchers do not yet know if hydroxychloroquine will be an effective medication for these patients. However, information collected as part of their participation in this trial will help other people in the future. If successful, this trial will reduce the burden of infection amongst high-risk patient groups, in a time-efficient and cost-effective manner, and help to ease the pressures on an already strained healthcare system.

Where is the study run from?

Addenbrookes Hospital (UK)

When is the study starting and how long is it expected to run for?

May 2020 to May 2025

Who is funding the study?

April Trust (UK)

Who is the main contact?

Dr. Rona Smith, add-tr.protect@nhs.net

Mr. Francis Dowling, add-tr.protect@nhs.net

Contact information

Type(s)

Scientific

Contact name

Dr Thomas Hiemstra

ORCID ID

<https://orcid.org/0000-0002-2115-8689>

Contact details

Cambridge Clinical Trials Unit
Box 401 Addenbrookes Hospital
Hills Road
Cambridge
United Kingdom
CB2 0QQ
+44 (0)1223 336817
add-tr.protect@nhs.net

Type(s)

Public

Contact name

Dr Kerry Brusby

Contact details

Cambridge Clinical Trials Unit
Box 401 Addenbrookes Hospital
Hills Road
Cambridge
United Kingdom
CB2 0QQ
+44 (0)1223 25 4472
add-tr.protect@nhs.net

Additional identifiers

ClinicalTrials.gov (NCT)

NCT04870333

Clinical Trials Information System (CTIS)

2020-004144-28

Integrated Research Application System (IRAS)

282317

Integrated Research Application System (IRAS)

288652

Protocol serial number

Current Study CCTU0307, ; Previous Study CCTU0307

Study information

Scientific Title

PROphylaxis for paTiEnts at risk of COVID-19 infecTion (PROTECT)

Acronym

PROTECT V

Study objectives

Current study hypothesis as of 05/09/2023 (updated 12/03/2024):

The use of intravenous Sotrovimab prophylaxis in at risk patients population (i.e. dialysis, vasculitis, glomerulonephritis, and kidney and organ transplant patients, primary immunodeficiency, oncology, automimmune/inflammatory disease patients, and those currently receiving immunosuppression) and a confirmed COVID-19 infection in this at-risk population compared to standard care.

Previous study hypothesis as of 24/11/2020 (updated 12/03/2024):

The use of intranasal Niclosamide prophylaxis against SARS-CoV2 infection in at risk patients (i.e. Dialysis, Vasculitis, glomerulonephritis and kidney transplant patients) populations at particularly high risk of COVID-19 and a confirmed COVID-19 infection in this at-risk population compared to standard care.

Previous study hypothesis:

The use of hydroxychloroquine (HCQ) prophylaxis in at risk patients (i.e. haemodialysis, vasculitis, and transplant patients) will increase the time to confirmed COVID-19 infection in this at-risk population compared to standard care.

Ethics approval required

Ethics approval required

Ethics approval(s)

1. Approved 24/11/2020, South Central Berkshire Research Ethics Committee (Bristol Research Ethics Committee Centre, Whitefriars, Level 3, Block B, Lewins Mead, Bristol, BS1 2NT, United Kingdom; +44 020 7104 8057; berkshire.rec@hra.nhs.uk), ref: 20/SC/0403
2. Approved 02/06/2020, East of England - Cambridge East Research Ethics Committee (The Old Chapel, Royal Standard Place, Nottingham, NG1 6FS, United Kingdom; +44 (0)207 104 8102; CambridgeEast.REC@hra.nhs.uk), ref: 20/EE/0146
3. Approved 23/10/2020, South Central - South Central Berkshire Research Ethics Committee (Bristol REC Centre, Whitefriars, Level 3, Block B, Lewins Mead, Bristol, BS1 2NT, United Kingdom; +44 (0)207 104 8057; Berkshire.REC@hra.nhs.uk), ref: 20/SC/0403

Primary study design

Interventional

Study design

Open-label multi-centre randomized controlled trial

Study type(s)

Prevention

Health condition(s) or problem(s) studied

COVID-19 (SARS-CoV-2 infection) in dialysis, vasculitis, and kidney transplant patients

Interventions

Current Intervention (04/01/2022) (updated 12/03/2024):

Patients will be randomised on 1:1 to receive either a single Intravenous Sotrovimab or standard care (placebo). Randomisation will be carried out using a validated bespoke automated randomisation system. Randomisation will be stratified by PROTECT V sub-group, age and site. Dosing: A 2g single infusion.

Niclosamide (17/12/2020) (updated 12/03/2024):

Patients will be randomised on 1:1 to receive either Nasal Niclosamide or standard care (placebo). Randomisation will be carried out using a validated bespoke automated randomisation system. Randomisation will be stratified by PROTECT V sub-group, age and site. Dosing: 1.4mg per nostril twice daily approximately 12 hours apart. Total daily dose of 5.6mg niclosamide ethanolamine salt

Previous Intervention:

Patients will be randomised to receive either 1:1 oral hydroxychloroquine (HCQ) or standard care (no HCQ). Randomisation will be carried out using a validated bespoke automated randomisation system. Randomisation will be stratified by PROTECT sub-group, age and centre.

Haemodialysis subgroup

Dosing: 600 mg per week given as 200 mg three times per week after each haemodialysis session for 6 months

Vasculitis and transplant subgroups

Dosing: 800 mg for first 2 days followed by 400 mg once a week for 6 months

Duration of follow up (all subgroups):

Until the end of the trial, on average 6 months

Intervention Type

Drug

Phase

Phase II/III

Drug/device/biological/vaccine name(s)

Niclosamide, sotrovimab (current study), hydroxychloroquine sulfate (previous study)

Primary outcome(s)

Time to confirmed COVID-19 diagnosis via online questionnaires at 6 weekly intervals

Key secondary outcome(s)

Duration and severity of illness (including mortality) collected through linkage to medical databases and through review of medical records.

Completion date

03/05/2025

Eligibility

Key inclusion criteria

- 1.1. Dialysis patients receiving in-centre haemodialysis, or
- 1.2. Diagnosis of vasculitis (according to Chapel Hill Consensus Conference 2012 definitions) and have received immunosuppression (including prednisolone ≥ 5 mg daily and/or an immunosuppressive agent (cyclophosphamide (oral or IV), rituximab, azathioprine, MMF, methotrexate, tocilizumab, alemtuzumab, abatacept, leflunomide) in the last 3 years, or
- 1.3. Transplant patients that have a functional kidney transplant (updated 15/05/2020, previously: Transplant patients)
2. Aged at least 18 years
3. No previous confirmed COVID-19 diagnosis
4. No symptoms highly suggestive of COVID-19 infection at screening or since 1st March 2020

Additional Inclusion Criteria (added 05/09/2023) (updated 12/03/2024):

5. Be a member of an immunocompromised population, which includes but is not limited to those groups listed in the core protocol as well as the following:
 - 5.1. Primary immunodeficiency
 - 5.2. Any Oncology, Haematology-Oncology or Haematology patient who is currently receiving or has received chemotherapy or who is immunocompromised as a result of their disease or treatment
 - 5.3. Have a diagnosis of an autoimmune/inflammatory disease currently receiving immunosuppression including those individuals currently on Prednisolone ≥ 20 mg daily for at least 4 weeks. Those who have received Rituximab or Alemtuzumab within the last 12 months would also be eligible.
 - 5.4. Solid organ and haematopoietic stem cell transplant recipients

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

18 Years

Upper age limit

100 Years

Sex

All

Total final enrolment

797

Key exclusion criteria

1. Inability to provide informed consent
2. Hypersensitivity reaction to hydroxychloroquine, chloroquine or 4-aminoquinolines
3. Contraindication to taking hydroxychloroquine as prophylaxis e.g known epilepsy
4. Already taking chloroquine, hydroxychloroquine or 4-aminoquinolines
5. History of any retinopathy including diabetic retinopathy requiring laser therapy
6. Taking medications which are contra-indicated alongside HCQ - digoxin, halofantrine, amiodarone, moxifloxacin, cyclosporin, mefloquine, praziquantel
7. Known history of prolonged QTc
8. eGFR <15 ml/min
9. Multi-organ transplant recipient (added 15/05/2020)

Additional Exclusion Criteria (added 05/09/2023) (updated 12/03/2024):

In addition to the core exclusion criteria in the master protocol, the presence of any of the following will preclude participant inclusion:

10. If in the opinion of the PI it is not in the best interests of the participant to take part in the study - for example due to limited life expectancy (≤ 12 months) due to pre-existing co-morbidities
11. History of hypersensitivity reaction to sotrovimab, one of its excipients or any other monoclonal antibody targeting SARS CoV-2
12. History of receiving any monoclonal antibody targeting SARS CoV-2 within the last 6 months
13. Admission to hospital for acute, unplanned care at the time of randomisation or in the two weeks prior to screening
14. History of receiving chimeric antigen receptor T-cell (CAR-T) therapy less than 4 weeks prior to consenting to take part in the study

Date of first enrolment

01/10/2020

Date of final enrolment

01/12/2024

Locations

Countries of recruitment

United Kingdom

England

Scotland

Study participating centre

Addenbrookes Hospital

Cambridge University Hospitals NHS Foundation Trust
Hills Road
Cambridge
England
CB2 0QQ

Study participating centre**Gloucestershire Hospitals Nhs Foundation Trust**

Trust HQ
Alexandra House
Cheltenham
England
GL53 7AN

Study participating centre**Shrewsbury And Telford Hospital Nhs Trust**

Mytton Oak Road
Shrewsbury
England
SY3 8XQ

Study participating centre**Basildon and Thurrock University Hospital**

Nethermayne
Basildon
England
SS16 5NL

Study participating centre**Kent & Canterbury Hospital**

East Kent Hospitals University Nhs Foundation Trust
Ethelbert Road
Canterbury
England
CT1 3NG

Study participating centre**Nottingham University Hospitals NHS Trust**

Trust Headquarters
Queens Medical Centre

Derby Road
Nottingham
England
NG7 2UH

Study participating centre
Royal Stoke University Hospital
Newcastle Road
Stoke-on-Trent
England
ST4 6QG

Study participating centre
Bradford Royal Infirmary
Bradford Teaching Hospitals NHS Foundation Trust
Duckworth Lane
Bradford
England
BD9 6RJ

Study participating centre
Northern General Hospital
Sheffield Teaching Hospitals NHS Foundation Trust
Herries Road
Sheffield
South Yorkshire
Sheffield
England
S5 7AU

Study participating centre
The Royal London Hospital
Whitechapel Road
Whitechapel
London
England
E1 1BB

Study participating centre
Imperial College Healthcare Nhs Trust
The Bays

St. Marys Hospital
South Wharf Road
London
England
W2 1BL

Study participating centre

St George's Hospital

St George's University Hospitals Nhs Foundation Trust
Blackshaw Road
Tooting
London
England
SW17 0QT

Study participating centre

Royal Liverpool University Hospital

Liverpool University Hospitals Nhs Foundation Trust
Prescot Street
Liverpool
England
L7 8XP

Study participating centre

East Surrey Hospital

Surrey And Sussex Healthcare Nhs Trust
Canada Avenue
Redhill
England
RH1 5RH

Study participating centre

Salford Royal

Salford Royal Nhs Foundation Trust
Stott Lane
Salford
England
M6 8HD

Study participating centre

Sunderland Royal Hospital

South Tyneside And Sunderland Nhs Foundation Trust
Kayll Road
Sunderland
England
SR4 7TP

Study participating centre**Royal Derby Hospital**

University Hospitals Of Derby And Burton Nhs Foundation Trust
Uttoxeter Road
Derby
England
DE22 3NE

Study participating centre**St Helier Hospital**

Epsom And St Helier University Hospitals Nhs Trust
Wrythe Lane
Carshalton
England
SM5 1AA

Study participating centre**NHS Greater Glasgow and Clyde**

J B Russell House
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow
Scotland
G12 0XH

Study participating centre**King's College Hospital Nhs Foundation Trust**

Denmark Hill
London
England
SE5 9RS

Study participating centre

NHS Tayside

Kings Croos
Cleington Road
Dundee
Scotland
DD3 8EA

Study participating centre**Queen Alexandra Hospital**

Portsmouth Hospitals Nhs Trust
Southwick Hill Road
Portsmouth
England
PO6 3LY

Study participating centre**Leicester Royal Infirmary**

University Hospitals of Leicester Nhs Trust
Infirmary Square
Leicester
England
LE1 5WW

Study participating centre**Freeman Hospital**

The Newcastle Upon Tyne Hospitals Nhs Foundation Trust
Freeman Road
High Heaton
Newcastle-upon-tyne
England
NE7 7DN

Study participating centre**Doncaster Royal Infirmary**

Doncaster and Bassetlaw Teaching Hospitals Nhs Foundation Trust
Armthorpe Road
Doncaster
England
DN2 5LT

Study participating centre

Royal Devon & Exeter Hospital

Royal Devon and Exeter Nhs Foundation Trust
Barrack Road
Exeter
England
EX2 5DW

Study participating centre**NHS Lanarkshire**

14 Beckford Street
Hamilton
Scotland
ML3 0TA

Study participating centre**Arrowe Park Hospital**

Wirral University Teaching Hospital Nhs Foundation Trust
Arrowe Park Road
Upton
Wirral
England
CH49 5PE

Study participating centre**Southmead Hospital**

North Bristol Nhs Trust
Southmead Road
Westbury-on-trym
Bristol
England
BS10 5NB

Study participating centre**Royal Preston Hospital**

Lancashire Teaching Hospitals Nhs Foundation Trust
Sharoe Green Lane
Fulwood
Preston
England
PR2 9HT

Study participating centre
Royal Berkshire Hospital
Royal Berkshire Nhs Foundation Trust
London Road
Reading
England
RG1 5AN

Study participating centre
New Cross Hospital
The Royal Wolverhampton Nhs Trust
Wolverhampton Road
Heath Town
Wolverhampton
England
WV10 0QP

Study participating centre
Torbay Hospital
Torbay and South Devon Nhs Foundation Trust
Newton Road
Torquay
England
TQ2 7AA

Study participating centre
Norfolk And Norwich University Hospitals Nhs Foundation Trust
Colney Lane
Colney
Norwich
England
NR4 7UY

Study participating centre
Royal Free Hospital
Royal Free London Nhs Foundation Trust
Pond Street
London
England
NW3 2QG

Sponsor information

Organisation

Cambridge University Hospitals NHS Foundation Trust

ROR

<https://ror.org/04v54gj93>

Organisation

University of Cambridge

ROR

<https://ror.org/013meh722>

Funder(s)

Funder type

Charity

Funder Name

April Trust

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are available on reasonable request from add-tr.protect@nhs.net

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		25/05/2023	27/01/2026	Yes	No
Basic results		27/01/2025	27/01/2026	No	No
HRA research summary			28/06/2023	No	No
HRA research summary			26/06/2026	No	No
Study website		11/11/2025	11/11/2025	No	Yes