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Understanding the impact of treatments for inflammatory bowel disease on immune responses to SARS-CoV2 vaccination

Submission date
26/10/2021

Recruitment status
No longer recruiting

Registration date
13/12/2021

Overall study status
Completed

Last Edited
21/01/2025

Condition category
Other

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Vaccination is likely to be a key weapon to protect the health of the world's population from COVID19 and is likely to be especially important in high risk individuals, such as those with pre-existing conditions including Inflammatory bowel disease (IBD).

Many IBD patients take immunosuppressive drugs, which leaves them vulnerable to infection. However, the risks associated with immunosuppression are not limited to increased susceptibility to infection. Immunosuppressive drugs may reduce the effectiveness of some vaccines, which could have major implications for the safety of immunosuppressed patients in the COVID-19 era.

The ultimate purpose of this study is to determine whether patients on different immunosuppressive drugs have impaired immune responses to SARS-CoV-2 vaccination. We will also investigate important mechanisms of successful vaccination and identify predictors of vaccination failure. This information will help planning for treatment and vaccination of immunosuppressed patients in the future.

Who can participate?
Patients with or without IBD who are on immunosuppressive medication and are receiving vaccination against SARS-CoV2

What does the study involve?
VIP is a prospective observational study to be conducted in IBD patients undergoing vaccination against SARS-CoV-2 at multiple centres across the United Kingdom. 600 IBD patients on different IBD medication (immunomodulators, anti-TNFs, combination immunomodulator and anti-TNF, Vedolizumab, Ustekinumab and Tofacitinib), and 200 healthy participants will be recruited. We will measure antibody levels and how the immune system responds to the vaccine over time. We will follow participants over two study visits at 60 days after the second dose of vaccine and 35-42 days after the third dose of vaccine.

What are the possible benefits and risks of participating?
The information we get from this study might help us to improve vaccination for patients on immunosuppressive treatments in the future. The findings may also help to inform government policies such as shielding for immunosuppressed patients. Travel costs for attending the research centre will be covered, a maximum of £20 per research visit will be offered. No significant risks to participants are anticipated. There may be bruising and discomfort at the site of the blood test, as with any blood test. The amount of blood you will donate is small enough that it should not make you feel faint or cause a low blood count.

Where is the study run from?
Imperial College London (UK)

When is the study starting and how long is it expected to run for?
March 2021 to June 2022

Who is funding the study?
Pfizer (USA)

Who is the main contact?
Dr James Alexander, j.alexander@imperial.ac.uk

Contact information

Type(s)
Public

Contact name
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Additional identifiers

Integrated Research Application System (IRAS)
292123

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293123

Study information

Scientific Title
SARS-CoV2 Vaccination immunogenicity in Immunosuppressed inflammatory bowel disease Patients

Acronym
VIP

Study objectives
• Concentrations of anti-SARS-CoV2 antibodies following vaccination will be reduced in IBD patients prescribed anti-TNF therapy and other immunosuppressive agents.
• The durability of antibodies against SARS-CoV2 following vaccination will be reduced in IBD patients prescribed anti-TNF therapy and other immunosuppressive agents.
• SARS-CoV2 antigen-specific T-cell responses following vaccination will be reduced in IBD patients prescribed anti-TNF therapy anti-TNF therapy and other immunosuppressive agents.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 18/03/2021, Wales Research Ethics Committee 5 (Health and Care Research Wales, Castlebridge 4,15-19 Cowbridge Road East, Cardiff, CF11 9AB, UK; +44 (0)1874 615950 Wales. REC5@wales.nhs.uk), ref 21/WA/0105

Primary study design
Observational

Study design
Prospective observational clinical study

Study type(s)
Other

Health condition(s) or problem(s) studied
Immune responses to SARS-CoV-2 vaccination in immunosuppressed inflammatory bowel disease patients.

Interventions
600 IBD patients will be recruited stratified according to the immunosuppressive medication they are on. Patients must have been for at least 3 months on the following treatments: thiopurines (n=100), infliximab (anti-TNF) (n=100), combination infliximab/thiopurines (n=100), vedolizumab (n=100), ustekinumab (n=100) and tofacitinib (n=100). 200 healthy people without IBD will also be recruited.

Following pre-screening, participants will be consented and enrolled in the study. Details including IBD phenotype, patient demographics and disease activity will be collected via the patient questionnaires, which will be completed after study consent is given.

40mL blood draw will be sampled at 2 time points, after 2nd dose of vaccination (days 60- 85), and 35-42 days post third dose of vaccine, to assess serology and T-cell responses.

Intervention Type
Biological/Vaccine

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Not provided at time of registration

Primary outcome(s)
Immunogenicity to routinely administered SARS-CoV2 vaccination at day 60-85 post second dose of vaccination, measured as the geometric mean titre of Anti-SARS-CoV-2 spike (S) antibodies (Roche Elecsys immunoassay)in IBD patients on immunosuppressive treatment regimens compared to non-IBD control participants.

Key secondary outcome(s)
1. Immunogenicity to vaccination at the first visit (between days 60- 85) post second dose of vaccination, measured as the geometric mean titres of S1 binding IgG and RBD IgG antibodies in IBD patients on immunosuppressive treatment regimens compared to non-IBD control participants.
2. Immunogenicity to a third dose (or booster dose) of vaccination at the second visit, 35-42 days (+/- 7 days) following the third dose, measured as the geometric mean titres of neutralising anti-SARS-CoV2 antibodies, S1-binding IgG antibodies and RBD IgG antibodies in IBD patients.
3. Proportion of IBD patients on immunosuppressive treatment regimens compared to non-IBD control participants with seroprotection against SARS-CoV2 at the first visit (between days 60-85) and at the second visit (35-42 days following third dose of vaccine).
4. Adaptive immune response to vaccination measured using T cell assays and longitudinal transcriptomics in each study arm.

Completion date
01/06/2022

Eligibility

Key inclusion criteria
1. Adults (aged ≥18 years)
2. Established diagnosis of CD or UC using standard definitions of IBD or healthy people without IBD.
3. Established on current immunosuppressive regimen (as listed in ‘study subjects’ section) for at least 12 weeks. This criteria does not apply to healthy participants without IBD.
4. Receiving vaccination against SARS-CoV2
5. Able to give informed consent.

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group

Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
483

Key exclusion criteria
1. Unable to give informed consent
2. Patients <18 years of age
3. Recipients of ‘accelerated dosing’ of vaccination (I.e. second dose of SARS-CoV-2 vaccination given within 42 days of first dose).
4. Patients on any other immune suppressants to those listed in study subjects section (other than oral steroids).
5. Excluded medication includes:
5.1. adalimumab
5.2. golimumab
5.3. certolizumab
5.4. mesazaline
5.5. mycophenolate
5.6. tacrolimus
5.7. thalidomide
5.8. ciclosporin
5.9. cyclophosphamide
5.10. hydroxychloroquine
5.11. leflunomide
5.12. methotrexate
5.13. mycophenolate
5.14. sulfasalazine

Date of first enrolment
28/05/2021

Date of final enrolment
01/01/2022

Locations

Countries of recruitment
United Kingdom

England

Scotland

Study participating centre
Hammersmith Hospital
Imperial Healthcare NHS Trust
Du Cane Road
London
United Kingdom
W12 0HS

Study participating centre
Western General Hospital
Crewe Road
Edinburgh
United Kingdom
EH4 2XU

Study participating centre
Royal Devon and Exeter Hospital
Exeter
United Kingdom
EX2 5DW

Study participating centre
Cambridge University Hospitals NHS Foundation Trust
Hills Road
Cambridge
United Kingdom
CB2 0QQ

Study participating centre
St. Mark's Hospital
Watford Road
Harrow
United Kingdom
HA1 3UJ

Study participating centre
Bart's Health NHS Trust
Whitechapel Road
Whitechapel

London
United Kingdom
E1 1BB

Sponsor information

Organisation
Imperial College London

ROR
https://ror.org/041kmwe10

Funder(s)

Funder type
Industry

Funder Name
Pfizer

Alternative Name(s)
Pfizer Inc., Pfizer Consumer Healthcare, Davis, Charles Pfizer & Company, Warner-Lambert, King Pharmaceuticals, Wyeth Pharmaceuticals, Seagen, Pfizer Inc

Funding Body Type
Government organisation

Funding Body Subtype
For-profit companies (industry)

Location
United States of America

Results and Publications

Individual participant data (IPD) sharing plan
Individual participant deidentified data that underlie the results reported in this study will be available immediately after publication for a period of 5 years. The data will be made available to investigators whose proposed use of the data has been approved by an independent review committee. Analyses will be restricted to the aims in the approved proposal. j.alexander@imperial.ac.uk

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		01/04/2022	18/07/2023	Yes	No
Results article		01/11/2022	18/07/2023	Yes	No
Results article		01/02/2023	18/07/2023	Yes	No
Results article		05/10/2023	16/10/2023	Yes	No
Results article		23/04/2024	21/01/2025	Yes	No
HRA research summary			28/06/2023	No	No
Interim results article		03/02/2022	07/02/2022	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Protocol file	version 1.7	12/10/2021	27/10/2021	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes