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Improving the long-term immune response to the flu vaccine in older people

Submission date
09/08/2024

Recruitment status
No longer recruiting

Registration date
30/10/2024

Overall study status
Completed

Last Edited
28/02/2025

Condition category
Other

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Influenza is a great threat to public health and most deaths occur in older people. Effective vaccination protecting older people from flu is a global health challenge. Long-lasting immunity following flu vaccination is difficult to achieve, only 52% of older people have protective antibodies after vaccination. The immune system becomes less efficient with age and immune responses to vaccines reduce. We want to confirm our exciting preliminary results showing that a dietary supplement, made from wheatgerm, can restore and improve levels of polyamine intake in older people. Older people have low levels due to reduced dietary intake. Polyamines can be absorbed from natural food types, e.g., wheatgerm and pomegranates. However, a large volume of food needs to be consumed to increase the level of polyamine dietary intake. A double-blinded, randomised study we conducted showed that the supplement is safe when given after a COVID vaccine and that immune biomarkers increase in older people, with a statistical significance compared to placebo. Our primary outcome will determine if this holds true when the supplement is given after a licensed flu vaccine. We will determine the feasibility of recruitment to the trial, retention of participants, tolerability of supplements, adverse reactions and the side-effect profile of the supplement when taken after the flu vaccine. Our secondary outcome will be exploratory, measuring immune biomarkers: antibodies, T/B cells, after the flu vaccine. We will compare the effects of the supplement to that of a placebo supplement. Blood samples will be analysed at Cardiff University and University of Oxford. This study will justify a Phase 1 clinical trial, where the supplement is administered with the flu vaccine to study the longevity of the immune response and measure clinical outcomes. This research develops health knowledge relating to flu prevention and enables people to manage their dietary intake at home with an oral food supplement.

Who can participate?
People who are 65 years and over are able to participate.

What does the study involve?
Participants taking part in the study will attend 4 research appointments over 37 weeks, at baseline, week 2, week 13 and week 37.

1. Following informed consent, at the baseline appointment participants will be asked questions about their health and these recorded in a form, have their pulse, blood pressure, oxygen levels, temperature and weight measured.
At the baseline visit they will receive a licensed flu vaccine. They will donate 60 mls of venous blood at baseline appointment for biochemistry and haematology profiles and immunogenicity assays.
They will be given a placebo or polyamine supplement to take home and instructions on how to take this for 2 weeks and asked to fill in a diary of missed doses and side effects.

2. At the week 2 visit, participants will be asked questions about their health and these recorded in a form, have their pulse, blood pressure, oxygen levels, temperature and weight measured. They will donate 60 mls of venous blood at baseline appointment for biochemistry and haematology profiles and immunogenicity assays. Missed doses or side effects will be recorded by the research team. They will be given a placebo or polyamine supplement to take home and instructions on how to take this for 11 weeks and asked to fill in a diary of missed doses and side effects.

3. At the week 13 visit, participants will be asked questions about their health and these recorded in a form, have their pulse, blood pressure, oxygen levels, temperature and weight measured. They will donate 50 mls of venous blood for immunogenicity assays. Missed doses or side effects will be recorded by the research team. They will be given a placebo or polyamine supplement to take home and instructions on how to take this for 11 weeks and asked to fill in a diary of missed doses and side effects.

4. At the week 37 visit, participants will be asked questions about their health and these recorded in a form, have their pulse, blood pressure, oxygen levels, temperature and weight measured. They will donate 50 mls of venous blood for immunogenicity assays. This is the end of the study.

Participants will be able to claim expenses at the end of the study and will be informed of the study results.

What are the possible benefits and risks of participating?
We cannot guarantee there are any benefits to taking part in the study.

Where is the study run from?
Cardiff University (UK)

When is the study starting and how long is it expected to run for?
May 2024 to November 2025

Who is funding the study?
Health and Care Research Wales (UK)

Who is the main contact?
Dr Lucy Jones, jonesl147@cardiff.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Dr Lucy Jones

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

Integrated Research Application System (IRAS)
314310

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
SPON1966-23, CPMS 64340

Study information

Scientific Title
IRFLUVA: Improving the long-term immune response to the flu vaccine in older people. A double-blinded, randomised controlled feasibility trial of the effects of a polyamine rich food supplement on flu vaccine antibody levels and immune cell responses, compared to a placebo supplement, in people aged 65 years and over.

Acronym
IRFLUVA

Study objectives
Is a wheat-germ extract supplement safe after a flu vaccine and can it improve the amplitude and longevity of antibody and cellular immune response to the flu vaccine in people aged over 65 years?

Ethics approval required
Ethics approval required

Ethics approval(s)

approved 07/05/2024, Black Country HRA Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 2071048129; blackcountry.rec@hra.nhs.uk), ref: 24/WM/0065

Study design
Interventional non-CTIMP single-centre double-blind randomized controlled study

Primary study design
Interventional

Study type(s)
Safety, Efficacy

Health condition(s) or problem(s) studied
Healthy ageing. Immune ageing

Interventions
Arm 1: Polyamine supplement – 6mg supplement taken orally for 13 weeks after a licensed flu vaccine. Follow-up for 37 weeks in total.
Arm 2: Placebo – 6mg of a rice flour placebo taken orally for 13 weeks after a licensed flu vaccine. Follow-up for 37 weeks in total.
Randomisation using REDCAP randomisation tool. The trial is double-blinded with stratified randomisation by biological sex.

Intervention Type
Supplement

Primary outcome(s)
Feasibility measures:
1. Data from the IRFLUVA study case report forms will be used to measure study recruitment rates and retention rates.
2. Data from the IRFLUVA study case report forms will be used to measure study withdrawals and the reason for withdrawal.
3. Data from the IRFLUVA study case report forms will be used to measure the number, severity and nature of adverse reactions for all participants at baseline, 2 weeks, 13 weeks and 37 weeks.
4. Data from the IRFLUVA study case report form will be used to measure the number, severity and nature of adverse events for all participants at baseline, 2 weeks, 13 weeks and 37 weeks.
5. Data from the IRFLUVA study case report form will be used to measure Compliance with polyamine supplement and placebo supplements from baseline to week 13.
6. Results from biochemistry and haematology profile testing at baseline, 2 weeks, 13 weeks and 37 weeks.
7. The number of protocol deviations will be measured at the end of the study.

Key secondary outcome(s))
Measured for up to 37 weeks:
1. T cell Elispots to measure responses to flu
2. B cell Elispots to measure B cell responses to flu
3. IgG ELISA to measure antibodies to flu
4. Plaque assays to study neutralizing antibodies
5. Cytokine assays to measure cytokine responses

Completion date
30/11/2025

Eligibility

Key inclusion criteria
1. 65 years of age or over
2. Capacity to provide written informed consent
3. Eligible for a seasonal flu vaccine
4. Willing to receive a licensed flu vaccine as part of the study protocol on visit 1 of the protocol

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Senior

Lower age limit
65 years

Upper age limit
101 years

Sex
All

Key exclusion criteria
1. Acutely unwell
2. Had a flu vaccine in the 6 months prior to recruitment
3. Known to be immunosuppressed
4. History of influenza in the 6 months prior to recruitment
5. Cannot provide informed written consent
6. Not willing to receive a licensed flu vaccine as part of the study protocol on visit 1 of the protocol
7. Use systemic steroids for more than one week e.g., prednisolone >0.5mg/kg/day in the three months prior to first study intervention
8. Chronic administration (≥14 days in total) of immunosuppressants or other immune modifying drugs in the 3 months prior to first study intervention
9. Receipt of blood, blood products and/or plasma derivatives or any immunoglobulin preparation in the three months prior to first study intervention
10. Diagnosed with diabetes
11. Diagnosed with allergy to, or constituent parts of, SpermidineLife supplements or who have gluten intolerance
12. Already taking Spermidine supplements at the time of recruitment or for 6 months prior to recruitment to the study

13. In custody
14. Currently participating in other interventional trials
15. Do not live in Wales

Date of first enrolment
30/09/2024

Date of final enrolment
30/10/2024

Locations

Countries of recruitment
United Kingdom

Wales

Study participating centre
University Hospital of Wales
Heath Park
Cardiff
United Kingdom
CF14 4XW

Sponsor information

Organisation
Cardiff University

ROR
https://ror.org/03kk7td41

Funder(s)

Funder type
Government

Funder Name
Health and Care Research Wales

Alternative Name(s)

Health & Care Research Wales, Health Care Research Wales, Ymchwil lechyd a Gofal Cymru, HCRW

Funding Body Type
Government organisation

Funding Body Subtype
Research institutes and centers

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
Anonymised datasets generated and analysed during the study will be available upon request from Dr Lucy Jones JonesL147@cardiff.ac.uk following publication.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes