ISRCTN11195489 https://doi.org/10.1186/ISRCTN11195489

Understanding Brain Inflammation in Cognitive Problems (BRIC)

Submission date
28/03/2024

Recruitment status
Recruiting

Registration date
09/07/2024

Overall study status
Ongoing

Last Edited
19/05/2025

Condition category
Nervous System Diseases

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

Plain English summary of protocol

Background and study aims
Dementia with Lewy bodies (DLB) affects one hundred thousand people in the UK. The causes of DLB are not completely understood but it is expected that the immune system plays an important role, as it does with Alzheimer's disease (AD). In AD, activation of the immune system is thought to happen years before the symptoms of dementia occur. This immune activation increases the risk of developing AD in later life. Also, events that activate the immune system in the blood, such as urine infections, are known to cause worsening of memory symptoms in people who already have AD. We do not yet know if the same is true in DLB.
We will measure inflammation in the body using blood tests to answer important questions such as:
1. Are cognitive problems associated with inflammation?
2. Is inflammation associated with the progression of cognitive problems?

Who can participate?
People aged 60 years and over with specific cognitive problems, along with people aged 60 years and over without cognitive problems.

What does the study involve?
All participants will have a clinical assessment and blood samples. The clinical assessment will help the researchers to understand the problems people are experiencing, and if their problems are progressing over time. Blood samples will show how inflammation in the body affects the brain. Participants will have a further clinical assessment and blood samples annually for 2 years. The findings of this study could identify inflammation as a new treatment target for people with cognitive problems.

What are the possible benefits and risks of participating?
There is no direct benefit from taking part in this study. However, the information from this study may help improve the future treatment of people with cognitive problems.

Where is the study run from?
University of Southampton (UK)

When is the study starting and how long is it expected to run for?
February 2020 to September 2029

Who is funding the study?
Lewy Body Society (UK)

Who is the main contact?
Dr Jay Amin, jay.amin@soton.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Integrated Research Application System (IRAS)
305370

Central Portfolio Management System (CPMS)
54263

Study information

Scientific Title
Understanding Brain Inflammation in Cognitive Problems (BRIC)

Acronym
BRIC

Study objectives
Current Study hypothesis as of 16/05/2025:

1. MCI-LB/mild DLB will show an increased peripheral pro-inflammatory profile and increased immunosenescent profile at baseline compared to controls.
2. Increased immunosenescent markers at baseline will be associated with more rapid disease progression in MCI-LB/mild DLB.
3. More frequent occurrence of peripheral pro-inflammatory events (e.g. infections, surgery) will be associated with increased pro-inflammatory cytokines and more rapid disease progression in MCI-LB/mild DLB.

Previous Study hypothesis:

1. Mild cognitive impairment with Lewy bodies (MCI-LB)/mild dementia with Lewy bodies (DLB) will be associated with increased 18F-DPA714 binding, which will be associated with more rapid disease progression.
2. 18F-DPA714 binding will decline over time in MCI-LB/mild DLB.
3. MCI-LB/mild DLB will show an altered peripheral inflammatory profile at baseline compared to controls.
4. Alterations in immunosenescent markers at baseline will be associated with more rapid disease progression in MCI-LB/mild DLB.
5. More frequent occurrence of peripheral pro-inflammatory events (e.g. infections, surgery) will be associated with increased pro-inflammatory cytokines and more rapid disease progression in MCI-LB/mild DLB.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 15/11/2022, Wales REC 7 (St David's Park, Carmarthen, SA31 3HB, United Kingdom; +44 (0)2922 941107; Wales.REC7@wales.nhs.uk), ref: 22/WA/0312

Primary study design
Observational

Study design
Longitudinal observational case-control study

Study type(s)
Other

Health condition(s) or problem(s) studied
Dementia with Lewy bodies

Interventions
Current interventions as of 16/05/2025:

At the initial baseline assessment, consent and clinical assessment will be carried out over two visits, each taking 1-2 hours. This will include a blood test.

Follow-up will take place annually for 2 years. After 1 year, the researchers will contact study volunteers to see if they are happy to have an appointment to repeat some of the assessments, have a blood sample and repeat the questionnaires with a relative/friend, taking 1-2 hours.

After 2 years, the researchers will contact study volunteers to see if they are happy to have clinical assessment, questionnaires and a repeat blood sample, taking 1-2 hours.

Previous interventions:

At the initial baseline assessment, consent and clinical assessment will be carried out over two visits, each taking 1-2 hours. This will include a blood test. Most participants will have brain scans (a combined PET and MRI scan, or separate PET and MRI scans on different days, each taking 1-1.5 hours).

Follow-up will take place annually for 2 years. After 1 year, the researchers will contact study volunteers to see if they are happy to have an appointment to repeat some of the assessments, have a blood sample and repeat the questionnaires with a relative/friend, taking 1-2 hours.

After 2 years, the researchers will contact study volunteers to see if they are happy to have repeat brain imaging, clinical assessment, questionnaires and a repeat blood sample, taking 1-2 hours.

Intervention Type
Other

Primary outcome(s)
Current primary outcome measure as of 16/05/2025:

Peripheral blood inflammatory profile is measured by flow cytometry of cells and analysis of inflammatory markers at baseline, 1 year and 2 years.

Previous primary outcome measure:

Brain Mitochondrial Translocator Protein (TSPO) is measured by 18F-DPA714 binding (mean cortical and regional) at baseline and 2 years

Key secondary outcome(s)
Current secondary outcome measures as of 16/05/2025:

1. Cognition is measured using the Mini Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) at baseline, 1 year and 2 years.
2. Global functional impairment is measured using the Clinical Dementia Rating Scale Sum of Boxes at baseline, 1 year and 2 years.

Previous secondary outcome measures:

1. Peripheral blood inflammatory profile is measured by flow cytometry of cells and analysis of inflammatory markers at baseline, 1 year and 2 years
2. Cognition is measured using the Mini Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) at baseline, 1 year and 2 years
3. Global functional impairment is measured using the Clinical Dementia Rating Scale Sum of Boxes at baseline, 1 year and 2 years

Completion date
01/09/2029

Eligibility

Key inclusion criteria
MCI-LB/DLB group:
1. Age ≥60 years
2. Fulfil criteria for probable MCI-LB (McKeith et al., 2020) or DLB (McKeith et al., 2017)
3. Capacity to consent to participation in the study
4. MMSE ≥20
5. If on cholinesterase inhibitors and/or memantine, stable dose for 3 months

Control group:
1. Age ≥60 years
2. MMSE ≥27
3. No evidence of mild cognitive impairment or dementia

Participant type(s)
Healthy volunteer, Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
60 Years

Upper age limit
120 Years

Sex
All

Key exclusion criteria
1. Active systemic inflammatory disease
2. Active autoimmune disease
3. Taking immune system modifying medications (e.g., oral steroids or tumour necrosis factor inhibitors)
4. Taking incretin analogues (e.g., liraglutide), minocycline or other microglial suppressing agents
5. History of clinical stroke

6. Current major depression
7. History of bipolar disorder, non-organic psychosis (e.g., longstanding schizophrenia) or recurrent severe depression
8. Chronic migraine

Date of first enrolment
14/02/2024

Date of final enrolment
14/08/2027

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Hampshire and Isle of Wight Healthcare NHS Foundation Trust
Tatchbury Mount Hospital
Calmore
Southampton
United Kingdom
SO40 2RZ

Sponsor information

Organisation
University of Southampton

ROR
https://ror.org/01ryk1543

Funder(s)

Funder type
Charity

Funder Name
Lewy Body Society

Alternative Name(s)
The Lewy body Society, LBS

Funding Body Type
Government organisation

Funding Body Subtype
Associations and societies (private and public)

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be stored in a non-publicly available repository (https://www.dementiasplatform.uk/)

IPD sharing plan summary
Stored in non-publicly available repository