REpositioning of Medications IN Dementia (REMIND)

First published: 09/04/2025

Last updated: 09/04/2025

Study Planned

Administrative details

EU PAS number

EUPAS1000000484

Study ID

1000000484

DARWIN EU® study

No

Study countries

☐ France

Study description

Despite extensive research and funding, Alzheimer's disease and related disorders (ADRD) currently have no curative or preventive treatment. Numerous treatments—including oral medicines, vaccines and immunotherapy—have

been developed to treat symptoms or slow the progression of Alzheimer's disease, but few have been granted market authorization and none offer a satisfactory benefit/risk ratio.
Medication repositioning studies are an innovative approach to accelerate both identification and testing of potentially effective medications already on the market by re-analyzing real-world data. Medication repositioning studies can use in vitro, in silico, and in vivo methods to identify medications candidates which, in a second step, must be evaluated using appropriate methods to demonstrate a causal relationship between drug and disease.
A critical hurdle in drug development, phase III clinical trials typically take the form of randomized controlled trials (RCT), the gold standard for questions of causality; however, RCTs are not well suited to answer questions requiring a long follow-up, such as questions surrounding the prevention of ADRD, a disease with a long lag time (>10 years). Nevertheless, innovative methods such as target trial emulation enable causality to be evaluated using observational data which has the long follow-up and low drop-out necessary. Large real-world databases such as the French National Health Data System (SNDS), which follows individuals from birth or immigration to death or emigration, remain largely under-exploited in the field of medication repositioning.
Using data from the SNDS, the REMIND study aims to identify approved medications that may prevent ADRD and to test the comparative effectiveness of reducing ADRD incidence versus active controls. An exploratory aim is to identify medication combinations associated with ADRD, which has been largely unstudied and will serve to generate hypotheses for further research.

Study status

Planned

Research institutions and networks

Institutions

Bordeaux PharmacoEpi, University of Bordeaux

France

First published: 07/02/2023

Last updated: 08/02/2023

Institution | Educational Institution | Hospital/Clinic/Other health care facility | Not-for-profit | ENCePP partner

INSERM

France

First published: 01/02/2024

Last updated: 01/02/2024

Institution | Other

Harvard T.H. Chan School of Public Health

National Institute of Aging and National Institute of Health

Rutgers Institute for Health, Health Care Policy and Aging Research

Fondation Bordeaux Université

Contact details

Study institution contact

Laure Carcaillon-Bentata plateforme.bpe@u-bordeaux.fr

Study contact

plateforme.bpe@u-bordeaux.fr

Primary lead investigator

Laure Carcaillon-Bentata 0000-0003-1556-8590

Primary lead investigator

ORCID number:

0000-0003-1556-8590

Study timelines

Date when funding contract was signed

Planned: 01/01/2025

Actual: 14/01/2025

Study start date

Planned: 01/04/2025

Data analysis start date

Planned: 01/08/2025

Date of final study report
Planned: 31/12/2027

Sources of funding

- Other

More details on funding

AXA research sponsorship

Regulatory

Was the study required by a regulatory body?

No

Is the study required by a Risk Management Plan (RMP)?

Not applicable

Methodological aspects

Study type

Study type list

Study topic:

Disease /health condition

Other

Study topic, other:

Geriatric Pharmacoepidemiology

Study type:

Non-interventional study

Scope of the study:

Effectiveness study (incl. comparative)

Hypothesis generation (including signal detection)

Data collection methods:

Secondary use of data

Study design:

Innovative and complementary drug repurposing approaches to identify new targets to prevent ADRD: a pioneering hypothesis-driven approach and an agnostic signal detection approach.

Target trial emulation with a long follow-up to demonstrate prevention.

Main study objective:

The overall objective of REMIND is to identify medications which may prevent ADRD. The drugs identified at the first step will be confirmed by TTE in the SNDS. We will explore if medication combinations are inversely associated with ADRD. The expected outcome is the identification of drugs or combination of drugs that prevent ADRD and new avenues of research in ADRD prevention.

Study Design

Non-interventional study design

Case-control

Cohort

Study drug and medical condition

Medical condition to be studied

Dementia

Dementia Alzheimer's type

Population studied

Short description of the study population

1. Population for the identification of approved medications which may prevent ADRD:

Inclusion criteria:

- CASES: individuals with an incident diagnosis of ADRD in the SNDS between 01 January 2017 and the end of the study period (31 Dec 2023) with at least 10 years history (i.e., minimum 8 years of lag and 2 years for exposure assessment) in the SNDS and aged 40 years and older at the date of ADRD diagnosis.
- CONTROLS: Controls will be comprised of individuals with no diagnosis of ADRD in the SNDS prior to the date of the matched case’s ADRD diagnosis with at least 10 years of history in the SNDS at inclusion (i.e., the date of ADRD diagnosis of the matched case).

Exclusion criteria: None.

2. Population for the comparison of each of the identified medications to an

active control (Target Trial Emulation):

Inclusion criteria:

Individuals initiating a study medication (i.e., intervention or active control) during the enrollment period (between 01 January 2010 and 31 December 2012), diagnosed with the study medication’s indication, aged 40 years and older at the index date (initiation of medication) with at least 5 years history in the SNDS to rule out prevalent ADRD and a potential follow-up of at least 10 years.

Exclusion criteria:

History of ADRD, previous use of medication of interest.

Age groups

Adult and elderly population (≥18 years)

Adults (18 to < 65 years)

Adults (18 to < 46 years)

Adults (46 to < 65 years)

Elderly (≥ 65 years)

Adults (65 to < 75 years)

Adults (75 to < 85 years)

Adults (85 years and over)

Study design details

Setting

To identify approved medications which may prevent ADRD and to explore if combinations of approved medications are associated with ADRD, an SNDS nested case-control design will be implemented. Cases will be comprised of individuals with incident diagnosis of ADRD between 01 January 2017 and the end of the study period (31 Dec 2023).

Controls will be comprised of individuals without an ADRD diagnosis during the historic and study periods matched 5:1 to cases according to age (year of birth), sex and region of residence on the date of case diagnosis.

To compare each of the identified medications to an active control to assess if these drugs reduce the incidence of ADRD in individuals > 40 years, a Target Trial Emulation design will be implemented. For each candidate medication identified, an active control with the same indication, but not impacting the Alzheimer’s disease pathway, will be selected. If no active control can be found meeting these criteria, using methods from high-throughput Target Trial Emulation, candidate medications may be assigned a control in the same second level Anatomical Therapeutic Chemical (ATC) classification category (ATC-L2), or, if impossible, at least 10 to 20 random medications other than the study medication.

Outcomes

Alzheimer's disease and related disorders diagnosis

Data analysis plan

Identification of Candidate Medications: descriptive analyses and Machine Learning Methods in matched case-control study. The association of potential candidates used 8 to 10 years before ADRD with ADRD incidence will be studied.

Comparative Analyses: descriptive analyses, crude and adjusted HR and cumulative incidence of ADRD will be estimated for each potential candidate (per protocol effect of medications). Sensitivity analyses will include an intent-to-treat analysis (without censoring when a medication is discontinued or switched), an alternative definition of outcome onset (we will assume that the true date of ADRD onset is 6, 12, and 24 months before the algorithm diagnosis

date), and an alternative definition of ADRD (using an algorithm currently under development).

Data management

Data sources

Data source(s)

Système National des Données de Santé (French national health system main database)

Data sources (types)

Administrative healthcare records (e.g., claims)

Use of a Common Data Model (CDM)

CDM mapping

No

Data quality specifications

Check conformance

Yes

Check completeness

Yes

Check stability

Yes

Check logical consistency

Yes

Data characterisation

Data characterisation conducted

Not applicable