

# INPLASY PROTOCOL

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**Review Stage at time of this  
submission:** The review has not  
yet started.

**Conflicts of interest:** None.

## Association between serum lipoprotein levels and cognitive impairment in acute cerebral infarction: a protocol for systematic review and meta-analysis

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**Review question / Objective:** Is serum lipoprotein levels (SLL) associated with cognitive impairment (CI) in patients with acute cerebral infarction (ACI)?

**Information sources:** The comprehensive search strategy will be carried out in the following electronic databases from their inauguration up to March 1, 2020: PubMed, EMBASE, Cochrane Library, PsycINFO, Web of Science, WANGFANG, and China National Knowledge Infrastructure. We will not apply language and publication time limitations to any literature searches. The sample of search strategy for PubMed is created. We will also adapt similar search strategies for other electronic databases. To avoid missing potential studies, we will also check other literature resources, such as Google Scholar, dissertations, conference abstracts, and reference lists of related reviews.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 April 2020 and was last updated on 03 April 2020 (registration number INPLASY202040018).

## INTRODUCTION

**Review question / Objective:** Is serum lipoprotein levels (SLL) associated with cognitive impairment (CI) in patients with acute cerebral infarction (ACI)?

**Condition being studied:** Acute cerebral infarction; serum lipoprotein levels; cognitive impairment.

## METHODS

**Participant or population:** We will include patients who had diagnosed as ACI, or healthy participants, regardless their race, sex, and age.

**Intervention:** In the experimental group, all participants had ACI.

**Comparator:** In the control group, all participants were health without ACI.

**Study designs to be included:** We will include case-controlled studies (CCSs) that examine the association between SLL and CI in patients with ACI.

**Eligibility criteria:** We will include CCSs that compared the association between SLL and CI in patients with ACI, and that of healthy participants.

**Information sources:** The comprehensive search strategy will be carried out in the following electronic databases from their inauguration up to March 1, 2020: PubMed, EMBASE, Cochrane Library, PsycINFO, Web of Science, WANGFANG, and China National Knowledge Infrastructure. We will not apply language and publication time limitations to any literature searches. The sample of search strategy for PubMed is created. We will also adapt similar search strategies for other electronic databases. To avoid missing potential studies, we will also check other literature resources, such as Google Scholar, dissertations, conference abstracts, and reference lists of related reviews.

**Main outcome(s):** Outcomes are SLL and CI. SLL is examined by enzyme linked immunosorbent assay. CI is measured by any relevant scales, such as Montreal Cognitive Assessment Scale, mini-mental state examination scale, or related tools.

**Quality assessment / Risk of bias analysis:** Two investigators will independently appraise methodological quality for each included study using Newcastle-Ottawa Scale. Any uncertainty between two investigators will be solved by another

experienced investigator through discussion, and a final decision will be made.

**Strategy of data synthesis:** RevMan 5.3 software will be used to pool and to analyze all data in this study. We will express continuous data as weighted mean difference or standardized mean difference and 95% confidence intervals (CIs), and dichotomous data as risk ratio and 95% CIs. We will test statistical heterogeneity by  $I^2$  statistics.  $I^2 \leq 50\%$  indicates acceptable heterogeneity, and a fixed-effect model will be used, while  $I^2 > 50\%$  suggests substantial heterogeneity, and a random-effect model will be employed. If  $I^2 \leq 50\%$  is identified among sufficient eligible CCSs, we will perform a meta-analysis. On the other hand, if  $I^2 > 50\%$  is examined, we will carry out a subgroup analysis and sensitivity analysis to explore the sources of heterogeneity. If it is not possible to conduct a meta-analysis, we will synthesize the outcome data using a narrative summary. It will be reported by detailed written commentary to demonstrate the findings, types of participants (ACI patients and healthy normal subjects), target participant characteristics, and types of outcome measurements (including SLL and CI).

**Subgroup analysis:** We will conduct subgroup analysis to identify any possible sources of heterogeneity and inconsistency according to the different study and patient characteristics, and outcomes.

**Sensibility analysis:** We will examine sensitivity analysis to test the robustness of conclusions by removing low quality studies.

**Countries involved:** China

**Keywords:** Acute cerebral infarction; serum lipoprotein levels; cognitive impairment; association.