

# INPLASY PROTOCOL

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None declared.

## Association between Lipocalin-2 levels and Gestational Diabetes Mellitus: A Systematic Review and Meta-Analysis

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**Review question / Objective:** The aim of the systematic review and meta-analysis of observational studies is to comparing the blood Lipocalin-2 levels in patients with GDM versus parturients with normal glucose intolerance.

**Condition being studied:** The pathogenesis of GDM has not been completely clarified. Recently, accumulating evidence indicated that adipokines are involved in the pathogenesis of GDM. Lipocalin-2, an adipokine, was found playing a role in the pathophysiology of GDM, while the results of many studies are still conflicting.

**Information sources:** Electronic databases: Cochrane Library, PubMed, EMBASE, Scopus, Web of Science, Chinese National Knowledge Infrastructure (CNKI) Database, and Wan-fang Database. The reference lists of related original and review articles were also analyzed using a manual approach. At the same time, we will retrieve other resources to complete the deficiencies of the electronic databases.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 September 2021 and was last updated on 27 September 2021 (registration number INPLASY202190097).

### INTRODUCTION

**Review question / Objective:** The aim of the systematic review and meta-analysis of observational studies is to comparing the blood Lipocalin-2 levels in patients with

GDM versus parturients with normal glucose intolerance.

**Condition being studied:** The pathogenesis of GDM has not been completely clarified. Recently, accumulating evidence indicated

that adipokines are involved in the pathogenesis of GDM. Lipocalin-2, an adipokine, was found playing a role in the pathophysiology of GDM, while the results of many studies are still conflicting.

## METHODS

**Participant or population:** Pregnant women with normal glucose tolerance and with gestational diabetes mellitus.

**Intervention:** Patients with GDM examined with blood lipocalin-2 levels.

**Comparator:** Parturients with normal glucose intolerance.

**Study designs to be included:** Observational study.

**Eligibility criteria:** (1) included pregnant women with GDM as participants; (2) circulating lipocalin-2 levels were detected; (3) controls were pregnant women with normal glucose tolerance; (4) evaluate the association between GDM and lipocalin-2 levels; (5) observational study.

**Information sources:** Electronic databases: Cochrane Library, PubMed, EMBASE, Scopus, Web of Science, Chinese National Knowledge Infrastructure (CNKI) Database, and Wan-fang Database. The reference lists of related original and review articles were also analyzed using a manual approach. At the same time, we will retrieve other resources to complete the deficiencies of the electronic databases.

**Main outcome(s):** Blood lipocalin-2 levels.

**Quality assessment / Risk of bias analysis:** The quality of eligible studies will be assessed by two independent researchers using The Newcastle-Ottawa Scale. Discrepancies will be resolved by discussion with a third investigator.

**Strategy of data synthesis:** Data were analyzed using STATA software (STATA version 15.0, STATA Corporation, College Station, TX, USA). We will express continuous data by weighted mean

difference or standardized mean difference and 95% CIs. Heterogeneity across the studies was evaluated using Cochrane's Q test and I<sup>2</sup> metric with a range of 0–100%. A random effects model was used if I<sup>2</sup> > 50%; otherwise, the fixed-effects model was used. The statistical significance was defined as p values less than 0.05.

**Subgroup analysis:** To explore the potential cause of heterogeneity, subgroup analysis will be conducted on different study information. Meta-regression will also be performed.

**Sensitivity analysis:** Sensitivity analyses, by omitting one individual study at a time, were performed to test the robustness of the results.

**Country(ies) involved:** China.

**Keywords:** Gestational diabetes mellitus, lipocalin-2, association.

### Contributions of each author:

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Author 2 - Xiaohong Jiang.

Author 3 - Kaiming Luo.

Author 4 - Xiaolin Huang.

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