

INPLASY

Relative Risk of Nephrolithiasis in Type 2 Diabetes Patients Using Sodium-Glucose Cotransporter 2 Inhibitors Compared to Those Using DPP-4 Inhibitors or GLP-1 Receptor Agonists: A Protocol of Systematic Review and Meta-analysis

INPLASY2024100087

doi: 10.37766/inplasy2024.10.0087

Received: 20 October 2024

Published: 20 October 2024

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ADMINISTRATIVE INFORMATION

Support - No financial support.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2024100087

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 October 2024 and was last updated on 20 October 2024.

INTRODUCTION

Review question / Objective To assess the risk of nephrolithiasis in patients with Type 2 Diabetes Mellitus (T2D) who are using SGLT2 inhibitors (SGLT2i).

Condition being studied Type 2 diabetes (T2D) is a significant risk factor for developing nephrolithiasis. While some studies have suggested that sodium-glucose cotransporter 2 inhibitors (SGLT2is) may reduce the risk of nephrolithiasis, the current evidence remains inconsistent and inconclusive, emphasizing the need for further investigation.

METHODS

Search strategy We will use terms related to "Sodium-glucose cotransporter 2 inhibitors" and "nephrolithiasis" to search through PubMed, EMBASE, and Cochrane Library.

Participant or population Adults type 2 diabetes patients with SGLT2i and DPP4i or GLP-1RA.

Intervention SGLT2i use.

Comparator DPP4i use or GLP-1RA use.

Study designs to be included Clinical trials or cohort studies.

Eligibility criteria The inclusion criteria were as follows: (a) Study population comprised individuals with T2D. (b) Studies that compared SGLT2i with DPP4i or GLP1RA (c) Results reported the risk of nephrolithiasis in different groups.

Information sources PubMed, EMBASE, and Cochrane Library.

Main outcome(s) Relative risk of nephrolithiasis of SGLT2i users compared to controls.

Quality assessment / Risk of bias analysis

ROBINS-1 tool for observational studies.

Strategy of data synthesis We will calculate the pooled hazard ratios (HRs) with 95% confidence intervals (CIs) using a random-effects restricted maximum likelihood (REML) model. For randomized controlled trials (RCTs), we will use unadjusted results, while for non-randomized studies, we will incorporate adjusted data.

Subgroup analysis No subgroup analysis will be applied.

Sensitivity analysis No sensitivity analysis will be applied.

Language restriction No language limited will be applied.

Country(ies) involved Taiwan.

Keywords sodium-glucose cotransporter 2 inhibitors; Diabetes mellitus; Nephrolithiasis; Systematic review; meta-analysis.

Contributions of each author

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