International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Comparative Clinical Outcomes of SGLT2 Inhibitor and DPP-4 Inhibitor Therapy in Patients with MASLD and Type 2 Diabetes: A Meta-Analysis of Observational Cohort Studies

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ADMINISTRATIVE INFORMATION

Support - NIL.

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202650065

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 May 2026 and was last updated on 11 May 2026.

INTRODUCTION

Review question / Objective Comparative Clinical Outcomes of SGLT2 Inhibitor and DPP-4 Inhibitor Therapy in Patients with MASLD and Type 2 Diabetes.

Condition being studied Patients with MASLD and Type 2 Diabetes Treated with SGLT2 Inhibitor and DPP-4 Inhibitor.

METHODS

Participant or population Patients with MASLD and Type 2 Diabetes.

Intervention SGLT2 Inhibitor Therapy.

Comparator DPP-4 Inhibitor Therapy.

Study designs to be included Only nonrandomized study types will be included.

Eligibility criteria Eligible studies were required to include at least 100 participants and report at least one outcome of interest.

Information sources The main databases to be searched are CENTRAL - Cochrane Central Register of Controlled Trials, Embase - Embase via Ovid and PubMed.

Main outcome(s) Outcomes:

1) MALO (major adverse liver outcomes) : was defined as a composite endpoint including cirrhosis, hepatic decompensation (e.g., esophageal variceal bleeding, hepatic encephalopathy, and ascites-related complications), hepatocellular carcinoma, liver transplantation, liver-related hospitalization and liver-related mortality

2) HCC

3) Liver Cirrhosis

4) MACE (major adverse cardiovascular events): was defined as a composite endpoint including cardiovascular death, nonfatal myocardial infarction, acute myocardial infarction, stroke (including ischemic/ cerebral infarction and hemorrhagic stroke), cardiac arrest, and hospitalization for myocardial infarction or stroke.

5) MI

6) Stroke

7) MAKE (major adverse kidney events) : included end-stage kidney disease, dialysis reinitiation, new dialysis requirement, and renal-relate death

8) All-cause mortality.

Quality assessment / Risk of bias analysis
Risk of bias will be assessed using: ROBINS-I
Data will be assessed by one person (or a machine) and checked by at least one other person (or machine).
Additional information will be sought from study investigators if required information is unclear or unavailable in the study publications/reports.

Strategy of data synthesis Hazard ratios (HRs) with 95% confidence intervals will be extracted and log-transformed, with standard errors (SEs) derived from the confidence intervals. Subdistribution hazard ratios (SHRs) will be considered comparable to HRs for pooling, with this noted as a potential source of heterogeneity. A random-effects model will be used due to anticipated clinical and methodological heterogeneity. Statistical heterogeneity will be assessed using the I^2 statistic. Where meta-analysis is not appropriate, a narrative synthesis will be conducted.

Subgroup analysis Hazard ratios (HRs) with 95% confidence intervals will be extracted and log-transformed, with standard errors (SEs) derived from the confidence intervals. Subdistribution hazard ratios (SHRs) will be considered comparable to HRs for pooling, with this noted as a potential source of heterogeneity. A random-effects model will be used due to anticipated clinical and methodological heterogeneity. Statistical heterogeneity will be assessed using the I^2 statistic. Where meta-analysis is not appropriate, a narrative synthesis will be conducted.

Sensitivity analysis The certainty of evidence will be assessed using the GRADE approach, considering risk of bias in observational studies, inconsistency across studies, indirectness, imprecision, and potential publication bias.

Language restriction English.

Country(ies) involved Taiwan.

Keywords Type 2 diabetes; Metabolic dysfunction-associated steatotic liver disease; Sodium-glucose cotransporter-2 inhibitors; DPP4 inhibitors.

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