INPLASY

Effect of Curcumin on Glycemic Control: A Systematic Review and Meta-analysis of Randomized Clinical Trials

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ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202390058

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 September 2023 and was last updated on 16 September 2023.

INTRODUCTION

Review question / Objective For high-risk and diabetic patients, can curcumin control blood sugar?

Condition being studied Type 2 diabetes mellitus is a chronic metabolic disorder characterized by insulin resistance. Globally, an estimated 541 million adults with Impaired Glucose Tolerance are at high risk of type 2 diabetes, which is currently estimated to affect 537 million adults and is expected to rise to 643 million by 2030 and 783 million by 2045. Impaired glucose tolerance and impaired fasting glucose, which are intermediate stages in the natural history of diabetes mellitus, are major health problems.

METHODS

Participant or population We will include studies that met the following criteria: (1) applying a randomized clinical trial (RCT) design (2) including patients who received curcumin supplementation (3) compare the effects of curcumin supplementation with a placebo group (4) being full-text articles written in English and will exclude studies that (1) had no placebo group or (2) RCTs that were not written in English.

Intervention Turmeric has captured significant interest from both the medical and culinary worlds. Curcumin (1, 7-bis(4-hydroxy-3-methoxyphenyl)-1, 6-heptadiene-3, 5-dione), a polyphenolic compound derived from the rhizome of Curcuma longa (turmeric), has garnered significant attention for its potential health benefits. his tasteless, orange-red photosensitive powder has a wide range of properties, including antioxidant, anti-inflammatory, and anti-diabetic capabilities, and has been shown to improve insulin sensitivity, reduce inflammation, and protect pancreatic beta cells from damage.

Comparator Starch, dextrin and maltodextrin.

Study designs to be included Randomized Control Trialstarch, dextrin and maltodextrin.

Eligibility criteria Relevant studies published before June 2023 will be identified, without any limitations on date of publication. We will include studies that meet the following criteria: (1) applying a randomized clinical trial (RCT) design (2) including patients who received curcumin supplementation (3) compare the effects of curcumin supplementation with a placebo group (4) being full-text articles written in English and will exclude studies that (1) had no placebo group or (2) RCTs that were not written in English.

Information sources We perform a literature search in the Embase, PubMed, and Cochrane Library databases.

Main outcome(s) Blood glucose and Hemoglobin A1c(HbA1c).

Additional outcome(s) Homeostatic Model Assessment for Insulin Resistance(HOMA-IR) and insulin level.

Quality assessment / Risk of bias analysis The Cochrane risk of bias (RoB) 2.0 tool will be used to assess the risk of bias in the included RCTs.

Strategy of data synthesis In this meta-analysis, all outcomes will be analyzed using RevMan software (version 5.4).

Subgroup analysis Diabetes and high-risk patients, follow-up time and intervention types.

Sensitivity analysis A sensitivity analysis will be performed to negate the effect of potentially influential studies. Each study will be classified in accordance with the Cochrane Handbook for Systematic Reviews of Interventions.

Country(ies) involved Taiwan.

Keywords curcumin; blood sugar; diabetes.

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