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INPLASY

Preclinical Effects of Curcumin on Metabolic Syndrome: A Systematic Review and Meta-Analysis in Rodent Models

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ADMINISTRATIVE INFORMATION

Support - The postdoctoral fellowship by Mae Fah Luang University and Program Management Unit for Competitiveness (PMUC), (Grant No. C02F670127).

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

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 7 November 2024 and was last updated on 7 and November 2024.

INTRODUCTION

Review question / Objective What are the mechanisms of curcumin and turmeric extract in preventing the onset and progression of metabolic syndrome as evidenced by in vivo studies?

Rationale It will examine the important parameters related to MetS, inflammatory and oxidative stress markers which helps in summarizing the updated research for animal studies. These animal models provide a controlled environment to explore the mechanisms underlying curcumin's effects on metabolic and inflammatory pathways, offering insights into its potential benefits in preclinical studies. The findings will be relevant for developing dietary strategies to mitigate MetS and its associated health risks; therefore, they give information for future studies and nutritional guidelines in health sector.

Condition being studied Mainly metabolic syndrome-related parameters as well as inflammatory and oxidative stress markers will be investigated in the current research.

METHODS

Search strategy Databases such as PubMed, SCOPUS, AMED, LILACS, Google Scholar and MDPI will be used. There is no time limitation strategy in our research. Non-English studies will be excluded.

Participant or population Rodent models of metabolic syndrome.

Intervention Curcumin, Curcuma longa, diferuloylmethane without any combination of other drugs or chemicals, and other types of intervention.

Comparator Both the effectiveness of curcumin or isolated compounds compared with placebo and/or control.

Study designs to be included Cohort study including control and experimental groups will be considered for this work.

Eligibility criteria Clinical and in vitro studies, non-English articles, case studies, and case reports.

Information sources Databases such as PubMed, SCOPUS, AMED, LILACS, Google Scholar and MDPI will be used.

Main outcome(s) Metabolic syndrome-related parameters: lipid profile, glucose level, blood pressure, cardiovascular diseases, type 2 diabetes, insulin resistance.
Inflammation markers: Interleukin IL-6, IL-1b, tumor necrosis factor (TNF-alpha), etc.
Oxidative stress markers: MDA, ROS, GSH levels, etc.

Quality assessment / Risk of bias analysis The SYRCLE tool will be used for the risk of bias analysis. The quality of the systematic review (SR) will be recorded using an additional spreadsheet using the SYRCLE tool and CAMARADES checklist.

Strategy of data synthesis A qualitative as well as a quantitative approach will be used.

Subgroup analysis N/A.

Sensitivity analysis N/A.

Language restriction English.

Country(ies) involved Thailand and Pakistan.

Keywords Curcuma longa; Inflammatory markers; Metabolic Syndrome; Pre-clinical evidence; Systematic review; Meta-analysis.

Contributions of each author

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