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Protective effects and mechanism of curcumin in animal models of lung injury caused by ischemia-reperfusion injury : a preclinical systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2024100071

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 October 2024 and was last updated on 16 October 2024.

INTRODUCTION

Review question / Objective Many studies have confirmed that curcumin has good effects on acute lung injury (ALI) caused by ischemia-reperfusion. However, the treatment of ALI in animals by curcumin remains uncertain. Our goal is to evaluate and meta-analyze the effectiveness and safety of curcumin in treating ALI in animal models.

Condition being studied Ischemia-reperfusion (I/R) is a common non-pulmonary cause of Acute Lung Injury (ALI). Clinically, I/R is frequently observed in conditions such as shock, organ transplantation, septic shock, pulmonary embolism, and trauma. I/R is a complex process involving multiple signaling pathways and inflammatory factors, Curcumin (1, 7-bis-(4-hydroxy-3-methoxyphenyl)-hepta-1, 6-diene-3, 5-dione) is a polyphenolic compound widely found in the roots of many plants.Curcumin exhibits several characteristics, including anti-inflammatory, antioxidant, anticancer, antibacterial, analgesic, lung protective, lipid-modifying, and hepatoprotective properties. Multiple experimental studies have shown that curcumin possesses antioxidant and anti-inflammatory activities. Curcumin (CUR) has significant potential in treating I/R-induced ALI.

METHODS

Participant or population Mice/rat ischemia-reperfusion model.

Intervention Treated with curcumin.

Comparator Placebo.

Study designs to be included Mice/rat ischemia-reperfusion model reports of ischemia-reperfusion treated with curcumin were searched from Pubmed, Embase, Web of Science and Cochrane Library compare curcumin treatment of with a no-intervention model group.

Eligibility criteria Create a mice/rat ischemia-reperfusion model, with the experimental group treated with curcumin.

Information sources Pubmed, Embase, Web of Science and Cochrane Library pubmed 、embase 、cochrane database.

Main outcome(s) TNF-α.

Quality assessment / Risk of bias analysis CAMARADES checklist.

Strategy of data synthesis Statistical analysis data from all included studies were summarized using Revman 5.3 and Stata 16.0. For continuous variables, we used the standard mean difference (SMD) of 95% confidence intervals (CIs) to represent the intervention effect.

Subgroup analysis None planned.

Sensitivity analysis None planned.

Country(ies) involved China.

Keywords curcumin, I/R.

Contributions of each author

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