

INPLASY PROTOCOL

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None declared.

Neuroprotective effects of resveratrol against cerebral ischemia/reperfusion injury through anti-oxidant and anti-inflammatory mechanisms: A Systematic Review and Meta-Analysis in Rodents

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Review question / Objective: To systematically evaluate the effects of resveratrol in the treatment of animal models of cerebral I/R injury, and to preliminarily explore the mechanisms, so as to provide a basic evidence-based reference for clinical treatment.

Eligibility criteria: (1) I / R animal model was established by MCAO; (2) Resveratrol was the only consistent therapeutic drug, and the animals in the control group used placebo; (3) Animal studies.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 August 2022 and was last updated on 15 August 2022 (registration number INPLASY202280059).

INTRODUCTION

Review question / Objective: To systematically evaluate the effects of resveratrol in the treatment of animal models of cerebral I/R injury, and to preliminarily explore the mechanisms, so

as to provide a basic evidence-based reference for clinical treatment.

Condition being studied: To systematically evaluate the effects of resveratrol in the treatment of animal models of cerebral I/R injury, and to preliminarily explore the

mechanisms, so as to provide a basic evidence-based reference for clinical treatment.

METHODS

Participant or population: Rodents.

Intervention: Resveratrol.

Comparator: Saline, etc.

Study designs to be included: Three databases were systematically searched to find the preclinical studies published from its inception to June 2022. Review Manager 5.4 software and Stata 15 software were used for meta-analysis.

Eligibility criteria: (1) I / R animal model was established by MCAO; (2) Resveratrol was the only consistent therapeutic drug, and the animals in the control group used placebo; (3) Animal studies.

Information sources: PubMed, Web of Science, and EMBASE.

Main outcome(s): PubMed, Web of Science, and EMBASE.

Quality assessment / Risk of bias analysis: The quality scores ranged from 4 to 7 points, with a mean of 5.94 points, and the overall quality of the articles was considered moderate. Publication bias of these studies was assessed by funnel plots, and the results showed that publication bias may exist. The results of the following 5 outcomes judged by funnel plots were all supported by egger's test.

Strategy of data synthesis: Statistical analyses were performed by investigators using Review Manager 5.4 software and Stata 15 software. Continuous type variables were estimated using the standardized mean difference (SMD) as the effect analysis statistic, and the interval was estimated using the 95% confidence interval (95% CI). $P < 0.05$ was considered statistically significant. Heterogeneity size was assessed with I^2 . $P > 0.1$ and $I^2 \leq 50\%$ were considered to be minor heterogeneity

across studies; Pooled analysis was performed using a fixed effects model. $P < 0.1$ and $I^2 > 50\%$ were considered as significant heterogeneity among studies, the random effects model was used for meta-analysis, and the results were subgroup analyzed to find the source of heterogeneity.

Subgroup analysis: Subgroup analysis of relevant indicators was performed according to the dose, route, time and frequency of administration.

Sensitivity analysis: To assess the robustness of the estimated pooled analysis for SOD, MDA, TNF- α , Bcl-2 and caspase-3, we adopted a sensitivity analysis by systematically removing each study and recalculating the pooled effect size of the remaining studies. Across the above metrics, the pooled effect was stable, suggesting that the results were not driven by any single study.

Country(ies) involved: China.

Keywords: resveratrol, cerebral ischemia-reperfusion injury, anti-oxidant, anti-inflammatory.

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