INPLASY

Effects of berberine on depression: A systematic review and meta-analysis of preclinical studies

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Data analysis.

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 25 April 2025 and was last updated on 25 April 2025.

INTRODUCTION

*R*eview question / Objective To date, no meta-analysis based on preclinical studies has been performed to synthesize and summarize the role of BBR in depression. Preclinical studies have the potential to shed light on physiology rationales for BBR use. In order to investigate the material basis and molecular mechanism of the effectiveness of BBR on depression and expand the understanding of the synergistic effects of BBR for depression.

Condition being studied It creates enormous public health problems and family burdens. Depression is a disorder that is easily recurrences over the life course3 , can occur at all ages2,4,5, has many different characteristics and properties of symptoms6,7, and is difficult to clearly identify. So far, depression is still an epidemic disease with a complex and uncertain pathological and pharmacological mechanisms.A substantial number of depressive patients do not show efficient improvement with currently those treatments.Due to the incompetence of the treatment and serious adverse events, an urgent problem has come up to find novel methos to cure depression for us.

METHODS

Search strategy Five online databases (PubMed, Embase, Web of Science, OVID, and Cochrane Library) were scoured to obtain comprehensive information on preclinical studies of BBR in the treatment of depression. The search was conducted from inception until 31 March 2025. To minimize the loss of research literatures, the approach was to use a set of defined Mesh terms searching in full text. And those search terms in the search strategy contain diseases and drug at meantime. Such as "depress*" "sadness" and "Berberine" "huangliansu" in PubMed.

Participant or population Subject were animal.

Intervention Single berberine intervention was used.

Comparator Vehicular（for example saline）.

Study designs to be included RCT.

Eligibility criteria 1) Results of studies published as an original article. 2) subjects must be animals 3) There are no restrictions on animal modeling methods, animal sex, size, species, or sample size. 4) Studies with separate treatment and control or model groups were available. 5) The experimental data can be fully obtained.

Information sources PubMed, Embase, Web of Science, OVID, and Cochrane Library.

Main outcome(s) Weight, Sucerose prefence test(SPT) , The number of crossings in OFT, The number of rearings in OFT, Total distance in OFT, Time duration of center square in OFT, Immobility time in FST, Immobility time in TST.

Quality assessment / Risk of bias analysis The 10-item scale of the Center for the Evaluation of Laboratory Animal Experiments (SYRCLE) risk.

Strategy of data synthesis Review Manager software version 5.4.1.

Subgroup analysis To identify heterogeneity potentially influencing the analysis of the BBR, subgroup analysis was conducted based on model species, age, and BBR dose.

Sensitivity analysis To examine whether overall findings are robust to potentially influential decisions, so we chose sensitivity analyses to further analysis.Re-run the meta-analysis each time excluding one individual study.Monitor whether the pooled effect size and its confidence interval change significantly.

Country(ies) involved China.

Keywords berberian, depression；drug.

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