

INPLASY PROTOCOL

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None declared.

Meta-analysis of the efficacy of metformin combined with traditional Chinese medicine in the treatment of obese polycystic ovary syndrome

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Review question / Objective: To evaluate the effects of metformin combined with traditional Chinese medicine (TCM) on sex hormone and glucose-lipid metabolism in obese patients with polycystic ovary syndrome (PCOS) by meta-analysis.

Condition being studied: Polycystic ovarian syndrome (PCOS) is a common endocrine disorder in gynaecology, which seriously affect patient's quality of life, fertility, and long-term health. Metformin is a biguanide insulin sensitizer commonly used in obese or insulin-resistant PCOS patients, that can improve insulin resistance and ameliorate metabolic disorders, but its gastrointestinal side effects are obvious, and cause severe renal function damage. In recent years, the curative effect of traditional chinese medicine has been widely recognized. Some clinical studies have revealed certain effects being achieved by combining traditional chinese medicine with metformin in the treatment of obese polycystic ovary syndrome, but the results according to various clinical reports are inconsistent. This article aims to use a method of network meta-analysis to explore the curative effect of traditional chinese medicine combined with metformin in the treatment of obese polycystic ovary syndrome.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 January 2023 and was last updated on 15 January 2023 (registration number INPLASY202310041).

INTRODUCTION

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METHODS

Participant or population: Obese PCOS patients older than 18 years old.

Intervention: Metformin combined with traditional chinese medicine.

Comparator: Metformin.

Study designs to be included: Metformin.

Eligibility criteria: Obese PCOS patients. Diagnostic criteria for PCOS were adopted by reference to the 2003 Rotterdam Criteria [9] or the 2012 Chinese diagnostic criteria.

Information sources: China National Knowledge Network database (CNKI), Chongqing VIP Chinese Science and Technology Journal Database (VIP), Wanfang database, China Biomedical Database (CBM), PubMed database, Embase database and Cochrane Library database.

Main outcome(s): (1) Body mass index (BMI); (2) Follicle stimulating hormone (FSH); (3) Luteinizing hormone (LH); (4) LH/FSH; (5) Fasting blood glucose (FPG); (6) Fasting insulin (FINS); (7) Insulin resistance index (HOMA-IR); (8) Total cholesterol (TC); (9) Triglyceride (TG); (10) Total clinical efficiency; (11) Adverse reactions.

Quality assessment / Risk of bias analysis: The Cochrane Bias risk assessment Table [11] was used to evaluate the quality of all included Studies. The evaluation process was carried out by two reviewers independently, and a third party participated in the discussion and assisted in reaching a consensus in case of disagreement.

Strategy of data synthesis: The present meta-analysis was conducted using the RevMan 5.3 software offered by Cochrane Collaboration. The mean difference (MD) was used as the statistic of effect analysis for continuous variables. The odds ratio (OR) was used as the effect size for dichotomous variables, and their pooled effect size and its 95% Confidence Interval (CI) were also calculated. Heterogeneity noted across all study results was evaluated using the χ^2 test, and the size of heterogeneity was quantitatively determined in combination with I^2 . If there was no statistical heterogeneity across the study results ($P > 0.10$, $I^2 \leq 50\%$), a fixed-effect model was used for the meta-analysis. However, when there was statistical heterogeneity across the study results ($I^2 > 50\%$), a random-effect model was used for the meta-analysis.

Subgroup analysis: Randomized controlled studies with considerable clinical heterogeneity were subjected to subgroup analysis.

Sensitivity analysis: Randomized controlled studies with considerable clinical heterogeneity were subjected to sensitivity analysis.

Country(ies) involved: China.

Keywords: metformin, traditional Chinese medicine, obese polycystic ovary syndrome, meta-analysis.

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