

**Efficacy of Acupuncture as adjunctive therapy for patients with AECOPD: A Systematic Review and Meta-Analysis**

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**ADMINISTRATIVE INFORMATION****Support** - None.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202430102**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 March 2024 and was last updated on 25 March 2024.**INTRODUCTION**

**Review question / Objective** The purpose of this meta-analysis was to comprehensively explore the therapeutical efficacy and safety of acupuncture in patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD). It will compare the effect of acupuncture based on western medicine to western medicine alone or sham/placebo acupuncture. Population: Patients who meet the criteria of AECOPD, regardless of gender, age, race, nationality and source of cases. Intervention: On the basis of the control group, acupuncture-related therapies (including body acupuncture, scalp acupuncture, electroacupuncture, warm acupuncture, etc.) was added; In order to explore the therapeutic effect of acupuncture more clearly, both the experimental group and the control group did not receive other traditional Chinese medicine treatments, such as Chinese herbal medicine, cupping, moxibustion, etc. Comparison: The control group received either standard treatments or standard treatments

plus sham acupuncture. Outcome: pulmonary function (including FEV1, FEV1%, FEV1/FVC%), arterial blood gas analysis (including PaO<sub>2</sub> and PaCO<sub>2</sub>), 6 minutes walking distance (6MWD), COPD Assessment Test (CAT), modified British medical research council (mMRC) and the high-sensitive C-reactive protein., etc.

**Condition being studied** Chronic obstructive pulmonary disease (COPD) is a heterogeneous pulmonary condition, often induced by infection and other factors acute acute exacerbation, seriously affecting the quality of life and health of patients, but also to the family and society has brought a huge economic burden, therefore, effective relief and control of acute attacks is very important. As an important part of external treatment of traditional Chinese medicine, acupuncture is widely used in the prevention and treatment of various diseases. Although acupuncture therapy is not the mainstream treatment for COPD, it is often used as an adjunctive therapy for acute aggravated chronic obstructive pulmonary disease (AECOPD) in

Western medicine. At present, more and more studies have shown that acupuncture is effective in improving lung function, improving quality of life, and enhancing anti-inflammatory and immunity. However, because acupuncture is often combined with other traditional Chinese medicine methods to complement conventional Western medicine treatment, few meta-analyses have focused on the true efficacy of acupuncture in the treatment of AECOPD.

## METHODS

**Participant or population** Patients who meet the criteria of AECOPD, regardless of gender, age, race, nationality and source of cases.

**Intervention** On the basis of the control group, acupuncture-related therapies (including body acupuncture, scalp acupuncture, electroacupuncture, warm acupuncture, etc.) was added; In order to explore the therapeutic effect of acupuncture more clearly, both the experimental group and the control group did not receive other traditional Chinese medicine treatments, such as Chinese herbal medicine, cupping, moxibustion, etc.

**Comparator** The control group received either standard treatments or standard treatments plus sham acupuncture.

**Study designs to be included** Only randomized controlled trials (RCTs) will be included in this study.

**Eligibility criteria** 1. The articles we included were randomized controlled trials (RCTs) 2. Patients eligible for AECOPD diagnosis according to the diagnostic criteria of AECOPD in GOLD. Regardless of age, gender or race. 3. The experimental group was given acupuncture treatment on the basis of the control group. We did not restrict the type of acupuncture; Patients can receive hand, ear, head, electric acupuncture, warm acupuncture, fire acupuncture, percutaneous acupoint electrical stimulation, puncture blood letting treatment. In order to explore the efficacy of acupuncture more clearly, the experimental group and the control group did not receive other Chinese medicine treatments, such as Chinese herbal medicine, cupping, moxibustion, acupoint application, acupoint embedding, acupoint injection, etc. 4. The main indicators include: lung function (including FEV1, FEV1%, FEV1/FVC%). Secondary measures included: clinical efficacy, arterial blood gas analysis (including PaO<sub>2</sub> and PaCO<sub>2</sub>), TCM syndrome score, 6-minute walking

distance (6MWD), COPD assessment test (CAT), revised Medical Research Council (mMRC), SQRG, etc.

**Information sources** Related studies in the following databases will be searched from inception to March 1, 2024: PubMed, Embase, Web of Science, the Cochrane Library, China Biomedical Literature Database (CBM), China National Knowledge Infrastructure, VIP and Wanfang.

**Main outcome(s)** Lung function: percentage of predicted values of FEV1 (FEV1%pred).

**Quality assessment / Risk of bias analysis** The quality of all RCTs will be evaluated with the Cochrane Collaboration tool. Two authors (Jimin Liu and Guixian Yang) will independently conduct quality evaluations, and any controversy will be addressed by discussion with another author (Guofeng Li).

**Strategy of data synthesis** Statistical analysis was conducted by RevMan software (version 5.4). We used mean difference (MD) with 95% CI for continuous outcomes and odds ratio (OR) with 95% confidence intervals (CI) for dichotomous outcomes. And I<sup>2</sup> test would be performed to estimate heterogeneity. I<sup>2</sup>>50%, indicates that heterogeneity is statistically significant, random effect model was used, while I<sup>2</sup><50%, indicates that heterogeneity is relatively small, fixed effect model was used. When there were more than 10 studies included in the meta-analysis, the funnel plots would be conducted to detect publication bias. And if necessary, a sensitivity analysis was conducted to evaluate the reliability and stability of our meta-analysis results.

**Subgroup analysis** If there is significant heterogeneity and the available trials are sufficient, we may conduct a subgroup analysis to investigate the source of heterogeneous results.

**Sensitivity analysis** To test the stability and reliability of the results of this study, we conducted a sensitivity analysis according to the following points: method quality, sample size, and missing data. After that, we will perform a data analysis again and compare the results. If there was no directional change after the sensitivity analysis, the results were stable.

**Country(ies) involved** China.

**Keywords** acute exacerbation of chronic obstructive pulmonary disease, acupuncture.

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