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Efficacy of Chinese herbal medicine in allergic rhinitis: a meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Completed but not published.

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 13 September 2025 and was last updated on 13 September 2025.

INTRODUCTION

Review question / Objective To evaluate the clinical efficacy of Chinese herbal medicine (CHM) in treating allergic rhinitis (AR) through meta-analysis.

Condition being studied Chinese herbal medicine (CHM) in treating allergic rhinitis (AR).

METHODS

Participant or population Patients with allergic rhinitis.

Intervention Administration of CHM to the experimental group of patients with AR, with no limitations on the form of CHM, including decoctions, tablets, pills, powders, herbal patches, and nasal sprays.

Comparator The control group could be a blank control, standard treatment, or placebo.

Study designs to be included This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) Guidelines 13 and systematically searched PubMed, Web of Science, Cochrane Library, CNKI, and Wanfang databases. The search period covered the establishment date of each database to September 2024. The search terms included combinations of English and Chinese keywords related to AR and CHM. English search terms included “allergic rhinitis,” “rhinitis, allergic,” “perennial rhinitis,” “pollen allergy,” “Chinese herbal,” “herbal medicine,” “plant extract,” “eastern medicine,” and “alternative.

Eligibility criteria (1) Clinical studies published in peer-reviewed Chinese and English journals, with Chinese studies limited to core journals; (2)

Confirmed cases of AR, with no restrictions on age, race, or gender of study participants; (3) Administration of CHM to the experimental group of patients with AR, with no limitations on the form of CHM, including decoctions, tablets, pills, powders, herbal patches, and nasal sprays; (4) The control group could be a blank control, standard treatment, or placebo; (5) The study type should be a prospective clinical study, including randomized controlled trials (RCTs) and cohort studies.

Information sources PubMed, Web of Science, Cochrane Library, CNKI, and Wanfang databases, the search period covered the establishment date of each database to September 2024.

Main outcome(s) The primary outcome measure in this study was response rate, which refers to the proportion of patients whose nasal symptoms (such as sneezing, rhinorrhea, nasal congestion, and nasal itching) showed significant improvement compared with baseline after treatment.

Quality assessment / Risk of bias analysis Publication bias was assessed by visually inspecting a funnel plot of the primary outcome, i.e., response rate. If the funnel plot displayed significant asymmetry of effect-size distribution, publication bias might be present.

Strategy of data synthesis All statistical analyses in this study were performed using the RevMan software (Version 5.4. The Cochrane Collaboration, 2020). Effect sizes for categorical data were expressed as relative risk (RR). Continuous data were expressed as mean difference (MD) or standardized mean difference (SMD), with 95% confidence intervals (CI) used to estimate the range of effect sizes. Heterogeneity across studies was assessed using the Q test and I^2 statistic. When the I^2 value was less than 50% or the P-value was greater than 0.05, indicating low heterogeneity between studies, a fixed-effects model was employed to pool effect sizes. If the I^2 value exceeded 50% or the P-value was less than 0.05, suggesting significant heterogeneity, a random-effects model was applied. To further investigate the sources of heterogeneity, sensitivity analyses or subgroup analyses were conducted when necessary. Publication bias was assessed by visually inspecting a funnel plot of the primary outcome, i.e., response rate. If the funnel plot displayed significant asymmetry of effect-size distribution, publication bias might be present.

Subgroup analysis Subgroup analysis by publication year indicated that studies published in 2024 and 2023 showed lower nasal congestion scores in the experimental group compared with the control group ($P < 0.0001$); nasal itching scores were lower in the experimental group than in the control group ($P < 0.0001$). Subgroup analysis by age revealed that the 30+ and 40+ age groups had lower nasal itching scores, sneezing scores and rhinorrhea scores in the experimental group compared with the control group ($P < 0.0001$).

Sensitivity analysis To further investigate the sources of heterogeneity, sensitivity analyses or subgroup analyses were conducted when necessary.

Country(ies) involved China.

Keywords Chinese herbal medicine; allergic rhinitis; meta-analysis.

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