INPLASY

Effects of Tanreqing injection against Ventilator-associated Pneumonia: a meta-analysis and systematic review of clinical studies

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ADMINISTRATIVE INFORMATION

Support - Ningbo Traditional Chinese Medicine Hospital.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202520008

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 2 February 2025 and was last updated on 2 February 2025.

INTRODUCTION

Review question / Objective To explore the clinical efficacy and safety of Tanreqing injection in the treatment of ventilator-associated pneumonia.

P：Ventilator-associated pneumonia (VAP)

I： Tanreqing Injection in combination with biomedical science

C：biomedical science

O: Inflammatory indicators, duration of antibiotic use, duration of ventilator use, success rate of first ventilator weaning, hospital stay, CPIS score

S： Randomized Controlled Trials.

Condition being studied Ventilator-associated pneumonia (VAP) increases the number of days of hospitalization for severe pneumonia, increases the risk of hospital death, and increases the socioeconomic burden on patients. Tanreqing Injection is a proprietary Chinese medicine injection that has been available in China for many years and consists of five Chinese medicines. Several studies have reported its role in improving clinical efficacy and reducing hospitalization days in VAP. However, there is no systematic review of phlegm-heat clear injection for VAP.

METHODS

Search strategy We will search the following electronic bibliographic databases: Chinese National Knowledge Infrastructure (CNKI), China Biomedical Literature Database (CBM), Wanfang Database, Chinese Scientific Journal Database (VIP), The Cochrane Library, PubMed, Web of Science, Embase.The following search terms will be used individually or in combination: "tanreqing injection", "ventilator-associated pneumonia", and "randomized controlled trial" in the above databases.Language restriction to Chinese and English.

Participant or population Ventilator-associated pneumonia (VAP).

Intervention Tanreqing Injection in combination with antibiotics, ventilation therapy and other treatments.

Comparator Antibiotics, respiratory therapy and other treatments.

Study designs to be included Randomized Controlled Trials (RCTs).

Eligibility criteria
Inclusion Criteria
1) Study Type: RCTs were included in the study.
2) The study population was as follows: Patients who have been clinically diagnosed with VAP in clinical studies.
3) Intervention Measures: In the experimental group, the intervention involved the administration of routine treatment (RT) in conjunction with tanreqing injection, whereas the control group received either RT alone or RT in conjunction with a placebo.

Exclusion Criteria
1) Studies involving patients with community-acquired pneumonia (CAP);
2) Duplicate studies, reviews, clinical protocols, commentaries, and case reports;
3) Studies that include interventions involving other traditional Chinese medicines or related therapies in addition to tanreqing injection;
4) Studies where data could not be obtained, even after contacting the original authors;
5) Studies without a control group;
6) Studies that are duplicate publications;
7) Studies with a sample size of fewer than 40 participants.

Information sources We will search the following electronic bibliographic databases: Chinese National Knowledge Infrastructure (CNKI), China Biomedical Literature Database (CBM), Wanfang Database, Chinese Scientific Journal Database (VIP), The Cochrane Library, PubMed, Web of Science, Embase.The following search terms will be used individually or in combination: "tanreqing injection", "ventilator-associated pneumonia", and "randomized controlled trial" in the above databases.Language restriction to Chinese and English.

Main outcome(s)
Inflammatory indicators (CRP, PCT, WBC, etc.);
Duration of hospitalization;
duration of ventilator use;
duration of antibiotic use;
first successful weaning rate;
CPIS score (Clinical Pulmonary Infection Score);
adverse drug reactions.

Quality assessment / Risk of bias analysis The quality of the clinical studies was evaluated using the RoB-2 tool, which assesses the following domains: The following domains were assessed for each study: 1) Randomization process; 2) Bias due to deviations from intended interventions; 3) Bias in adherence to interventions; 4) Missing outcome data; 5) Bias in measurement of outcomes; 6) Selective reporting of results; 7) Overall RoB-2 score. Two reviewers conducted an independent assessment of the quality of the studies. In the event of a discrepancy, discussions were held or the corresponding author was consulted to reach a resolution.

Strategy of data synthesis The statistical analysis was conducted using RevMan 5.4 software. The I^2 test was employed for the purpose of assessing heterogeneity. In accordance with the guidelines set forth in the Cochrane Handbook for Systematic Reviews of Interventions[8], I^2 values of 0%–40% may be indicative of low heterogeneity, 30%–60% may indicate moderate heterogeneity, 50%–90% may be indicative of substantial heterogeneity, and 75%–100% may indicate considerable heterogeneity. In instances where the I^2 value fell below 50%, a fixed-effects model was employed. Conversely, when the I^2 value reached or exceeded 50%, a random-effects model was utilized. A p-value of less than 0.05 was deemed statistically significant. In the case of categorical data, the relative risk (RR) was employed as the effect measure. In the case of continuous data, the mean difference (MD) was employed when measurement methods and units were consistent. Conversely, when such consistency was lacking, the standardized mean difference (SMD) was utilized when different measurement methods or units were involved.

Subgroup analysis If there is significant heterogeneity, subgroup analysis will be performed to explore potential sources of heterogeneity.

Sensitivity analysis If there is significant heterogeneity, sensitivity analysis will be performed to explore potential sources of heterogeneity.

Country(ies) involved China.

Keywords Tanreqing Injection; Ventilator-associated Pneumonia.

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