INPLASY PROTOCOL

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Review Stage at time of this submission: **The review has not yet started.**

Conflicts of interest:
None.

Ventilator for the management of patients with severe pneumonia: a protocol of systematic review

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Review question / Objective: **Can ventilator effectively manage patients with severe pneumonia (SP)?**
Condition being studied: **Ventilator; sever pneumonia.**
Information sources: **This study will systematically search electronic databases in MEDLINE, EMBASE, Web of Science, PsycINFO, Cochrane Library, CNKI, and Scopus from the beginning to present without language restrictions. The search strategy with detailed terms of MEDLINE is presented. We will modify identical search strategy for other electronic databases. Besides, we will search thesis, dissertations, conference abstracts, and reference lists of included studies.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 July 2020 and was last updated on 25 August 2020 (registration number INPLASY202070052).

INTRODUCTION

Review question / Objective: **Can ventilator effectively manage patients with severe pneumonia (SP)?**

Condition being studied: **Ventilator; sever pneumonia.**

METHODS

Participant or population: **All adult patients (aged more than 18 years old) who were diagnosed as SP will be included, regardless race, gender, and severity and duration of SP.**

Intervention: All patients received ventilator in treating SP.

Comparator: All patients underwent other treatments for the management of SP, but not any forms of ventilator.

Study designs to be included: All potential randomized controlled trials (RCTs) that assessed the efficacy and safety of ventilator compared with other treatments in treating SP will be considered for inclusion, irrespective language and publication status.

Eligibility criteria: All potential RCTs that assessed the efficacy and safety of ventilator compared with other treatments in treating SP will be considered for inclusion, irrespective language and publication status

Information sources: This study will systematically search electronic databases in MEDLINE, EMBASE, Web of Science, PsycINFO, Cochrane Library, CNKI, and Scopus from the beginning to present without language restrictions. The search strategy with detailed terms of MEDLINE is presented. We will modify identical search strategy for other electronic databases. Besides, we will search thesis, dissertations, conference abstracts, and reference lists of included studies.

Main outcome(s): Outcomes include all-cause mortality, duration of hospital stay, duration of intensive care unit stay, secondary infections, and any expected or unexpected adverse event.

Data management: Two authors will independently extract data according to the pre-designed standardized data extraction form. Any dissimilarity between two authors will be solved by a third author via discussion. The extracted data includes title, first author, country, published year, patient information, sample size, study methods, details of modality, outcome indicators, safety, results, findings, funding information, and conflict of interest.

Quality assessment / Risk of bias analysis: Two authors will independently judge study quality using Cochrane risk of bias tool, which covers 7 aspects. Each item is further divided as high, unclear and low risk of bias. Any incompatibility difference between two authors will be disentangled by a third author.

Strategy of data synthesis: This study will perform statistical analysis using RevMan 5.3 software. We will estimate continuous data using weighted mean difference or standard mean difference and 95% confidence intervals (CIs), and will express dichotomous data using risk ratio and 95% CIs. I^2 test will be utilized to examine statistical heterogeneity across studies. It is interpreted as follows: $I^2 \leq 50\%$ means homogeneity, and we will place a fixed-effects model; $I^2 > 50\%$ reveals considerable heterogeneity and we will employ a random-effects model. If homogeneity is identified and sufficient data are collected on the same outcome, we will plan to carry out a meta-analysis. Otherwise, we will find out possible sources of obvious heterogeneity.

Subgroup analysis: This study will carry out a subgroup analysis in accordance with the variations in study information, patient characteristics, study methods, and study quality.

Sensibility analysis: This study will perform a sensitivity analysis to test the stability of study findings by removing low quality studies.

Country(ies) involved: China.

Keywords: Ventilator; sever pneumonia; efficacy; safety.

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