INPLASY PROTOCOL

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All authors declare to have no real or perceived conflicts of interest with respect to this manuscript.

The Clinical Efficacy and Safety of Convalescent Blood Products in the Treatment of Infectious Viral Pneumonia: A Systematic Review and Meta-analysis

Hu, Y[1]; Zhang, F[2]; Zhang, H[3]; Sheng, X[4]; Huang, L[5]; Cui, A[6].

Review question / Objective: **We included all types of article contained patients suffering from COVID-19, SARS, MERS, Spanish influenza A, avian influenza A(H5N1), influenza A[H1N1] pdm09, avian influenza A(H7N9), and Ebola. The intervention methods were convalescent plasma (CP), convalescent serum (CS), and hyperimmune IV immunoglobulin (H-IVIG). The comparator treatments included standard care, IVIG, placebo or other treatment without using convalescent blood product. The primary outcome designated as the mortality rate. Other outcome measures included the clinical condition (the improvement of symptoms or WHO six-category ordinal scale status), viral loads, the levels of antibodies, the duration of hospitalization, ICU and mechanical ventilation, and adverse effects.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 June 2020 and was last updated on 12 June 2020 (registration number INPLASY202060043).

INTRODUCTION

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or WHO six-category ordinal scale status), viral loads, the levels of antibodies, the duration of hospitalization, ICU and mechanical ventilation, and adverse effects.

Condition being studied: An outbreak of 2019 novel coronavirus disease (COVID-19) has affected more than 227 countries worldwide since the first report in Wuhan, China, late December 2019. The lack of effective treatment or vaccine leads to relatively high mortality of the disease, especially for critical ill patients. Convalescent blood products (CBP) have been trialed in many viral infectious diseases, such as influenza, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), as well as Ebola. Curative effects have been proved in some of those diseases. FDA has proposed convalescent plasma (CP) as a treating option for serious or immediately life threatening COVID-19 infections. However, due to the shortage of research data, the efficacy of CP still needs to be cautiously evaluated.

METHODS

Search strategy: Two authors searched Pubmed, EMBASE, Cochrane Central Register, CNKI, and Wanfang databases for relevant articles, using the MESH terms ("COVID-19" OR "Severe Acute Respiratory Syndrome" OR "Middle East Respiratory Syndrome Coronavirus" OR "Influenza" OR "Pneumonia, Viral" OR "Hemorrhagic Fever, Ebola") AND "convalescent plasma". All records were published before 1 May 2020. Manual searches of reference lists were also performed mainly for Spanish influenza A. The language was restricted to English and Chinese.

Participant or population: Patients suffering from COVID-19, SARS, MERS, Spanish influenza A, avian influenza A(H5N1), influenza A[H1N1] pdm09, avian influenza A(H7N9), and Ebola.

Intervention: The intervention methods were convalescent plasma (CP), convalescent serum (CS), and hyperimmune IV immunoglobulin (H-IVIG).

Comparator: The comparator treatments included standard care, IVIG, placebo or other treatment without using convalescent blood product.

Study designs to be included: Randomized-controlled trail, cohort study, case-comparison study, case report and case series.

Eligibility criteria: Studies contained patients suffering from COVID-19, SARS, MERS, Spanish influenza A, avian influenza A(H5N1), influenza A[H1N1] pdm09, avian influenza A(H7N9), and Ebola, with using convalescent blood products.

Information sources: Pubmed, EMBASE, Cochrane Central Register, CNKI, and Wanfang databases for relevant articles. Manual searches of reference lists were also performed mainly for Spanish influenza A.

Main outcome(s): The primary outcome designated as the mortality rate.

Additional outcome(s): Other outcome measures included the clinical condition (the improvement of symptoms or WHO six-category ordinal scale status), viral loads, the levels of antibodies, the duration of hospitalization, ICU and mechanical ventilation, and adverse effects.

Quality assessment / Risk of bias analysis: The Cochrane Collaboration tool was used for randomized-controlled studies. Newcastle Ottawa scale (NOS) was used for cohort studies. Joanna Briggs Institute, Practical Application of Clinical Evidence System (JBI PACES) was used for case reports and case series.

Strategy of data synthesis: Dichotomous data were analyzed by using the odds ratio (OR) with 95% confidence intervals (CI). Continuous outcomes were analyzed by using mean ± standard deviation (SD) with its 95% CI.

Subgroup analysis: We will divide studies into subgroups (Spanish influenza A, influenza in the 21st century, and COVID-19).

Sensibility analysis: We will use STATA 15 (db metaninf) to perform sensibility analysis.

Language: The language was restricted to English and Chinese.

Country(ies) involved: China.

Keywords: 2019 novel coronavirus disease; severe acute respiratory syndrome; viral pneumonia; convalescent blood products; mortality.

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