International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Network meta-analysis of different liver protective drugs in the treatment of drug-induced liver injury

INPLASY202360039

doi: 10.37766/inplasy2023.6.0039

Received: 14 June 2023

Published: 14 June 2023

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ADMINISTRATIVE INFORMATION

Support - This work was supported by Yunnan Fundamental Research Projects (Grant Nos. 202201AU070007 and 202201AY070001- 147).

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202360039

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 June 2023 and was last updated on 14 June 2023.

INTRODUCTION

Review question / Objective This study collected the therapeutic effects of different treatment measures on drug-induced liver injury in recent years through network meta-analysis, evaluated and screened the current best clinical treatment plan, and assisted doctors in formulating clinical treatment plans.

Condition being studied Currently, drug-induced liver injury has become one of the public issues in society, adding a huge burden to individuals and society. In the current clinical stage, there are many drugs to treat this disease, and different drug treatment measures have been proved to have certain clinical efficacy in the corresponding randomized controlled trial(RCT). However, there are still many therapeutic drugs that have not been directly compared and studied. Therefore, it is difficult to directly compare the effectiveness and safety of various schemes for treating drug-induced liver injury.

METHODS

Participant or population Because this is a systematic review of the protocol and a network meta-analysis, all the data in this study are from published studies and do not involve patients.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included This study collected the therapeutic effects of different treatment measures on drug-induced liver injury in recent years through network meta-analysis, evaluated and screened the current best clinical

treatment plan, and assisted doctors in formulating clinical treatment plans.

Eligibility criteria The inclusion criteria were as follows: (1) The type of study was Randomized controlled trial; (2) The language of the literature is limited to Chinese and English; (3) There are no restrictions on the age, gender, race, and course of disease of patients in the literature, but baseline comparability is required; (4) The interventions in the study were different liver protective drugs; (5) The patient's liver injury is consistent with the diagnosis of drug-induced liver injury; (6) The outcome indicators of the study include ALT, AST, adverse reactions, effective rate, and TBIL.Exclusion criteria: (1) repeated publications without finding the original text; (2) overview, experience summary, case report, meeting, meta-analysis, etc.; (3) Disease diagnosis does not match drug-induced liver injury; (4) The intervention measures include the combined use of multiple (≥ 2) liver protective drugs.

Information sources Keywords were used to search databases, such as the Chinese Journal Full-text Database (CKNI), VIP Chinese Science and Technology Journal Full-text Database (VP-CSJFD), Wanfang Data Journal Paper Resources (Wangfang), PubMed, The Cochrane Library, and EMBASE. The retrieval period was from the establishment of each database to January 2023.

Main outcome(s) This study compared the clinical efficacy of 13 liver protective drugs through meta-analysis, and provided a systematic understanding of commonly used DILI treatment drugs in clinical practice.

Quality assessment / Risk of bias analysis From the funnel chart of ALT, AST, TBIL, adverse reactions and effective rate, it can be seen that the points are scattered and incompletely symmetrical, suggesting that there may be some publication bias, and there are scattered points at the bottom of the funnel chart of each research index, indicating that there is a small sample effect.

Strategy of data synthesis The retrieval period was from the establishment of each database to January 2023. Qualified randomized controlled studies were screened according to the inclusion and exclusion criteria, and Stata 16 software was adopted for mesh meta-analysis of binary variable data. Using R4 0.2 software, and calling gemtc and JAGS packages in R software, the Bayesian network model analysis of survival data was completed.

Subgroup analysis/ Sensitivity analysis Stata 16 software was adopted for the network meta-analysis of binary variable data, while an inconsistency test was conducted to analyze the overall consistency between direct and indirect evidence. When $P>0.05$, there was no consistency and the consistency model was fitted. In contrast, an inconsistent model was fitted. In addition, the node-splitting method was used to test the local inconsistency between the direct and indirect comparisons. When $P<0.05$, local inconsistencies were observed. The count data are expressed as relative risk (HR) and 95% confidence interval (CI). Furthermore, the efficacy of intervention measures is ranked according to the area under the cumulative probability (surface under the cumulative ranking, SUCRA). The larger the area under the curve, the better is the efficacy of the intervention measures. When the number of studies included in the outcome index exceeded 10, publication bias was evaluated by visually observing the distribution symmetry of points on the funnel chart.

Country(ies) involved China.

Keywords Network meta-analysis; liver protective drugs; drug-induced liver injury.

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