INPLASY

Early use of low-dose hydrocortisone can reduce in-hospital mortality in patients with septic shock: A systematic review and meta-analysis

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Song, BL; Liu, C; Fu, KR.

Corresponding author:
song bin lin

1809040209@stu.hrbust.edu.cn

Author Affiliation:
North Sichuan Medical University.

ADMINISTRATIVE INFORMATION

Support - Dazhou center hospital.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202480070

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 August 2024 and was last updated on 14 August 2024.

INTRODUCTION

Review question / Objective The aim of this study is to evaluate the effect of the initiation time of low-dose hydrocortisone adjuvant therapy on the clinical outcome of patients with septic shock by systematic review and meta-analysis.

Condition being studied Two reviewers (Chun Liu and Binglin Song) independently assessed the quality.We searched PubMed, Cochrane, and Embase databases from inception to August 1, 2024, for all randomized controlled trials (RCTS) and cohort studies comparing the outcomes of different time periods when adjuvant therapy with low-dose hydrocortisone (HC) was initiated. "The primary outcomes reported were studies of short-term mortality (ICU and Hospital mortality) and secondary outcomes (rates of renal replacement therapy, length of ICU stay, and shock reversal).

METHODS

Participant or population Patients with septic shock.

Intervention Early use of low-dose hydrocortisone.

Comparator Late use of low-dose hydrocortisone.

Study designs to be included Randomized controlled trial and retrospective cohort study.

Eligibility criteria Septic shock was classified according to the current Third International Consensus definition of Sepsis and Septic Shock (sepsis 3.0), considering the presence of infection with organ dysfunction, the use of vasoactive drugs, MAP 2 mmol/L.

Information sources PubMed、Web of science and Embase.

Main outcome(s) Short-term mortality of patients with septic shock; CRRT rate, shock reversal rate, length of ICU stay.

Quality assessment / Risk of bias analysis Cochrane and NOS.

Strategy of data synthesis Review Manager (RevMan) version 5.4 software was used. In-hospital mortality and bleeding complications (binary variables) were expressed as odds ratios (ors) with 95% confidence intervals (cl), so that weighted pooled ors were calculated with the Mantel-Haenszel method, and continuous variables (length of stay) were expressed as mean differences (MD) with 95%cl, according to the Cochrane Handbook for Systematic reviews. Outcome measures were recorded as median and interquartile range (IQR) in multiple articles, and the mean and standard deviation were calculated using calculators based on sample size. The I^2 test was used to measure statistical heterogeneity. When I^2 =0, there was no heterogeneity. When I^2<50%, study heterogeneity was considered to be small and the fixed effect model was used for analysis.

Subgroup analysis According to the initiation time of hydrocortisone, the patients were divided into 4 subgroups (6h, 9h, and 12h) for analysis.

Sensitivity analysis Sensitivity analyses of highly heterogeneous outcomes were performed with the use of Stata software to further identify the source of heterogeneity.After excluding one article, the heterogeneity was significantly reduced, so it was determined that this article may be the source of heterogeneity.

Country(ies) involved China.

Keywords Septic shock, Hydrocortisone, Timing.

Contributions of each author

Author 1 - song bin lin.
Email: 1809040209@stu.hrbust.edu.cn
Author 2 - LIU CHUN.
Email: 1301889951@qq.com
Author 3 - Fu Kangrui.
Email: 1692772061@qq.com