

INPLASY

Risk factors of mortality in patients with pyogenic liver abscess: a systematic review protocol

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202380006

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 August 2023 and was last updated on 27 December 2023.

INTRODUCTION

Review question / Objective We aim to clarify the risk factors of mortality among patients with pyogenic liver abscess.

Condition being studied Pyogenic liver abscess (PLA) is a rare, but potentially fatal disease. The current mortality rates consistently hover around 5-10%, indicating an unchanging trend in recent years. This underlines the pressing need for an enriched understanding of the risk factors that impact mortality outcomes in order to improve patient care and prognosis. While certain retrospective studies have examined the risk factors associated with PLA, a literature gap is evident, as no systematic reviews have yet delved into a thorough analysis of the risk factors related to mortality.

METHODS

Search strategy Two reviewers (T-HH and M-CS) will independently conduct an electronic search of

the databases including Pubmed, Cochrane Library, Web of Science, Europe PMC, EMBASE, Ariti library, LILACS, Google Scholar, ClinicalTrials.gov and International Clinical Trials Registry Platform (ICTRP) (WHO) from inception to July 31 2023. We will perform manual search for the reference list of included studies and related systematic reviews. We will also search conference abstracts of the IDWeek meeting, the annual meeting of the Society for Academic Emergency Medicine, and the AASLD (American Association for the Study of Liver Disease) annual meeting. There is no restriction about language or publication status. The keywords including liver abscess, hepatic abscess, risk factor, predictor, predictive factor, prognosis, prognostic factor and mortality will be used for search.

Participant or population Patients with pyogenic liver abscess.

Intervention Exposure of factors, such as diabetes mellitus, age, malignancy or other factors investigated in studies.

Comparator None of the above factors.

Study designs to be included Observational studies (cohort study, case-control study, cross-sectional study, case series) and clinical trials.

Eligibility criteria Studies fulfilling following criteria will be included: 1) source of case is studies of patients with pyogenic liver abscess 2) relevant studies providing factors contributing to mortality 3) study type: observational studies (cohort study, case-control study, cross-sectional study, case series) and clinical trials 4) studies analyzed with logistic regression model or cox proportional hazard ratio. Furthermore, duplicated articles, studies without available full text, studies with combined outcome, studies with non-relevant studies or mixed with other non-bacterial pathogens, such as amoeba or fungus, will be excluded.

Information sources Pubmed, Cochrane Library, Web of Science, Europe PMC, EMBASE, Ariti Library, LILACS, ClinicalTrials.gov, International Clinical Trials Registry Platform (ICTRP) (WHO), Google Scholar, reference list of included studies and related systematic reviews, and conference abstracts of the IDWeek meeting, the annual meeting of the Society for Academic Emergency Medicine, and the AASLD (American Association for the Study of Liver Disease) annual meeting.

Main outcome(s) Primary outcome is short-term mortality, including in-hospital mortality, 30-day or 28-day mortality, and post-discharge 30-day mortality.

Additional outcome(s) Secondary outcomes include 30-day mortality, 3-month mortality, 6-month mortality, 1-year mortality, and other mortality outcomes.

Data management The data from eligible studies will be independently extracted by 2 reviewers (T-HH and J-WL) using a standardized data extraction form via Microsoft Office EXCEL software. Disagreements will be resolved through discussion with a third reviewer (C-KH).

Quality assessment / Risk of bias analysis The quality assessment of included articles will be performed via Quality in Prognostic Studies (QUIPS) tool by 2 reviewers (T-HH and T-FH) independently. Disagreements will be resolved through discussion with a third reviewer (H-MC).

Strategy of data synthesis The meta-analysis will be performed using Review Manager (ReMan)

Version 5.4 (The Cochrane Collaboration, 2020) and R software. Adjusted estimates from each study will be pooled as main results in the meta-analyses. The pooled effect with its 95% CI will be calculated by random-effects model. The Cochran's Q-test and I square statistic will be used to test the heterogeneity. Egger's test will be used for assessment of publication bias.

Subgroup analysis Subgroup analysis will be considered to be conducted to investigate the heterogeneity if necessary.

Sensitivity analysis Pooled results from adjusted estimates and unadjusted estimates in each study will be compared in the sensitivity analysis to investigate the robustness of findings.

Language restriction No.

Country(ies) involved Taiwan.

Other relevant information Meta-regression analysis will be considered to be conducted to determine the relationship between factors, study characteristics and outcomes if necessary. The certainty of evidence will be evaluated via the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) system by 2 reviewers (J-WL and M-CS) independently. Disagreements were resolved by discussion with a third reviewer (C- KH).

Keywords Pyogenic liver abscess; mortality; risk factor; prognosis.

Contributions of each author

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