Spontaneous Bacterial Empyema in Cirrhosis - A Systematic Review and Incidence Rate Meta-Analysis

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Supplementary table of contents:

Supplementary Appendix 1: Search Strategy

Literature Database	Search items	Items found
Embase	"'spontaneous bacterial empyema':ab,ti OR 'sbem':ab,ti"	237
MEDLINE	"spontaneous bacterial empyema" OR "SBEM"	168
CENTRAL	"spontaneous bacterial empyema" OR "SBEM"	3
Scopus	((TITLE-ABS-KEY ("spontaneous bacterial empyema" OR "SBEM"))	266
Web of Science	"spontaneous bacterial empyema" OR "SBEM"	119
Total		793
Duplicates		638

Supplementary Figure 1: Quality assessment using the Qumseya Scale

Author/Year	Total	Interpretation
Xiol 1996 [8]	8	High
Chen 2003 [21]	8	High
Chen 2011 [7]	6	Moderate
Makhlouf 2012 [5]	4	Low
Mansour 2013 [23]	7	Moderate
Emam 2015 [24]	6	Moderate
Abbasi 2016 [6]	7	Moderate
Mohamed 2017 [25]	8	High

The authors have provided this supplementary material to give readers additional information about their work.

Supplementary table 1: PRISMA checklist

Section/Topic	Item #	Checklist Item	Reported on Page #
TITLE			
Title	1	Identify the report as a systematic review *incorporating a meta-analysis.*	**1**
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: **Background:** main objectives **Methods:** data sources; study eligibility criteria, participants, and interventions; study appraisal; and synthesis methods **Results:** number of studies and participants identified; summary estimates with corresponding confidence/credible intervals and implications of findings. **Conclusion:** Implications of finds.	**3-4**
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known, *including mention of artificial intelligence (AI) and why a meta-analysis has been conducted.*	**4-5**
Objectives	4	Provide an explicit statement of questions being addressed, with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	**5**
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists and if and where it can be accessed (e.g., Web address); and, if available, provide registration information, including registration number.	**5**
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	**6**
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	**6**
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	**6**
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	**6**
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	**6**
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	**7**
Risk of bias within individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	**6**
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	**7**
Planned methods of analysis	14	Describe the methods of handling data and combining results of studies for each network meta-analysis.	**7**
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	**7**
Additional analyses	16	Describe methods of additional analyses if done, indicating which were pre-specified. This may include, but not be limited to, the following: • Sensitivity analysis	**7**

		• Subgroup analysis	
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	**7**
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	**8**
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	**9**
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: 1) simple summary data for each intervention group, and 2) effect estimates and confidence intervals using a forest plot.	**7**
Synthesis of results	21	Present results of each meta-analysis done, including confidence/credible intervals. If additional summary measures were explored (such as treatment rankings), these should also be presented.	**8**
Results of additional analyses	23	Give results of additional analyses, if done • Sensitivity analysis • Subgroup analysis	**8-9**
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies for the evidence base being studied (see item 15).	**9**
DISCUSSION			
Summary of evidence	24	Summarize the main findings, including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy-makers).	**9**
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review level (e.g., incomplete retrieval of identified research, reporting bias).	**12**
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	**12**
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. This should also include information regarding whether funding has been received from manufacturers of treatments in the network and/or whether some of the authors are content experts with professional conflicts of interest that could affect use of treatments in the network.	**Disclosed in title page**

PRISMA-P adapted from Annals of Internal Medicine (OPEN ACCESS) Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *Preferred Reporting Items for Systematic Reviews and Meta-Analyses:* The PRISMA Statement. Ann Intern Med, 151(4)

Supplementary table 2 MOOSE checklist

Item No	Recommendation	Reported on Page No

Reporting of background should include		
1	Problem definition	4-5
2	Hypothesis statement	NA
3	Description of study outcome(s)	5
4	Type of exposure or intervention used	5
5	Type of study designs used	5
6	Study population	5
Reporting of search strategy should include		
7	Qualifications of searchers (eg, librarians and investigators)	6
8	Search strategy, including time period included in the synthesis and key words	5
9	Effort to include all available studies, including contact with authors	6
10	Databases and registries searched	6
11	Search software used, name and version, including special features used (eg, explosion)	6
12	Use of hand searching (eg, reference lists of obtained articles)	N/A
13	List of citations located and those excluded, including justification	N/A
14	Method of addressing articles published in languages other than English	6
15	Method of handling abstracts and unpublished studies	6
16	Description of any contact with authors	6
Reporting of methods should include		
17	Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	6
18	Rationale for the selection and coding of data (eg, sound clinical principles or convenience)	N/A
19	Documentation of how data were classified and coded (eg, multiple raters, blinding and interrater reliability)	6
20	Assessment of confounding (eg, comparability of cases and controls in studies where appropriate)	N/A
21	Assessment of study quality, including blinding of quality assessors, stratification or regression on possible predictors of study results	6
22	Assessment of heterogeneity	7
23	Description of statistical methods (eg, complete description of fixed or random effects models, justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	7
24	Provision of appropriate tables and graphics	Sup 2-4
Reporting of results should include		
25	Graphic summarizing individual study estimates and overall estimate	8
26	Table giving descriptive information for each study included	8
27	Results of sensitivity testing (eg, subgroup analysis)	8
28	Indication of statistical uncertainty of findings	9

Item No	Recommendation	Reported on Page No
Reporting of discussion should include		
29	Quantitative assessment of bias (eg, publication bias)	9
30	Justification for exclusion (eg, exclusion of non-English language citations)	N/A
31	Assessment of quality of included studies	7
Reporting of conclusions should include		
32	Consideration of alternative explanations for observed results	9-12
33	Generalization of the conclusions (ie, appropriate for the data presented and within the domain of the literature review)	12
34	Guidelines for future research	12
35	Disclosure of funding source	Title page

Sup, Supplementary material