INPLASY PROTOCOL

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Support: **None.**

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Safety and efficacy in endoscopic ultrasound-guided drainage for abdominal abscess: a meta-analysis

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Review question / Objective: What about the safety and efficacy of endoscopic ultrasound-guided drainage for abdominal abscess compared to other treatments?

Condition being studied: Abdominal abscess. Endoscopic ultrasound-guided drainage.

Information sources: From 05/14/2020 to 05/31/2020, articles are searched in MEDLINE, The Cochrane Library, Web of Science and EMBASE databases. Studies published as full-text articles in peer review journals are selected and reviewed. We also search and review relevant references within articles identified during the screening process. Full articles are retrieved for all titles and abstracts that appeared to potentially fulfill the study inclusion criteria. The search terms used are the combinations of the following words: abdominal abscess, intra-abdominal abscess, intraperitoneal abscess, endoscopic ultrasound, endosonograpy, EUS and drainage.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 May 2020 and was last updated on 14 May 2020 (registration number INPLASY202050056).

INTRODUCTION

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METHODS

Participant or population: Inclusion: Patients diagnosed as abdominal abscess who receive endoscopic ultrasound-guided drainage. Exclusion: Patients under 18 years old and elderly people(over 70).

Intervention: Intra-abdominal abscess count among the most common causes of infectious mortality in the intensive care unit and it becomes common in clinics. EUS-guided drainage doesn't need require general anesthesia and its hospitalization compared to surgical drainage is shorter. Besides, EUS-guided drainage can eliminate the need for an external drain, minimize the risk of fistulas and prevents fluid and electrolyte losses. Hence, the safety and efficacy of EUS-guided drainage for abdominal abscess is necessary. Patients included are diagnosed as abdominal abscess and receive EUS-guided drainage.

Comparator: Other treatments other than EUS-guided drainage for abdominal abscess (e.g.percutaneous drainage).

Study designs to be included: We will include retrospective or prospective studies, single or multi-center studies, RCTs to assess the safety and efficacy of EUS-D.

Eligibility criteria: Patients diagnosed as abdominal abscess who receive endoscopic ultrasound-guided drainage.

Information sources: From 05/14/2020 to 05/31/2020, articles are searched in MEDLINE, The Cochrane Library, Web of Science and EMBASE databases. Studies published as full-text articles in peer review journals are selected and reviewed. We also search and review relevant references within articles identified during the screening process. Full articles are retrieved for all titles and abstracts that appeared to potentially fulfill the study inclusion criteria. The search terms used are the combinations of the following words: abdominal abscess, intra-abdominal abscess, intraperitoneal abscess, endoscopic ultrasound, endosonograpy, EUS and drainage.

Main outcome(s): Technical and clinical success rates. Technical success refers to the ability to access and drain the abscess by placement of a drain, with purulent fluid flowing through it. Clinical success refers to complete resolution of clinical symptoms with disappearance of the lesion or a≥ 50% decrease in size in at least one imaging technique(US, CT or MRI). These outcomes are measured in the follow-up period for around 3 months.

Quality assessment / Risk of bias analysis: RCT studies will be assessed by Cochrane risk assessment scale for bias. A number of criteria will be used to assess this quality of a study: randomization, selection bias of the arms in the study, concealment of allocation, blinding of outcome, the implementation of bias, measurement bias, follow-up of bias, report of bias, others.

Strategy of data synthesis: This meta-analysis is performed by calculating pooled proportions, i.e. pooled proportion of patients with resolution of abdominal abscess measured through technical and clinical success rates. First, the individual study proportion of resolution of abdominal abscess will be transformed into a quantity using Freeman-Tukey variant of the arcsine square root transformed proportion. The pooled proportion is calculated as the back-transform of the weighted mean of the transformed proportions using inverse arcsine variance weights for the fixed effects model and DerSimonian-Laird weights for the random effects model. Forrest plots will be drawn to show the point estimates in each study in relation to the summary pooled estimate. The width of the point estimates in the Forrest plots indicates the assigned weight to that study. The heterogeneity among studies will be tested using Cochran's Q test based on inverse variance weights. If p-value is>0.10, it rejects the null hypothesis that the studies are heterogeneous. The effect of publication and selection bias on the summary estimates will be tested by both Harbord-Egger bias indicator and

BeggMazumdar bias indicator. Also, funnel plots will be constructed to evaluate potential publication bias using the standard error and diagnostic odds ratio.

Subgroup analysis: Patients included in these articles are divided into subgroups according to the treatments for abdominal abscess, e.g. endoscopic ultrasound-guided drainage, percutaneous drainage. Follow-up is done after the treatment. The main outcomes (technical and clinical success rates) and the additional outcomes (the time to clinical success, complications and recurrence rates) will be analyzed using Review Manager software to assess the safety and efficacy of EUS-guided drainage.

Sensibility analysis: Sensibility analysis will be done to check if the pooled results are stable and reliable. When I2>50%, random effect model will be used. When I2<50%, fixed effect model will be used.

Country(ies) involved: China.

Keywords: Abdominal abscess. Endoscopic ultrasound-guided drainage.

Contributions of each author:
Author 1 - Sifan Liu - Author 1 did literature review, data extraction, quality assessment and drafted the manuscript.
Author 2 - Xue Jing - Author 2 did literature review, data extraction and provided statistical expertise.
Author 3 - Zibin Tian - Author 3 gave guidance, contributed to the development of the selection criteria, and the risk of bias assessment strategy.