

INPLASY PROTOCOL

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None declared.

Point-of-care ultrasound in patients with dyspnea, nontraumatic hypotension, and shock: a systematic review protocol

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Review question / Objective: To summarize the existing literature on point-of-care ultrasound in dyspnea, nontraumatic hypotension, and shock.

Condition being studied: Patients with dyspnea, nontraumatic hypotension, and shock who were assessed using point-of-care ultrasound.

Information sources: The electronic databases PubMed and Embase were searched. In addition we reviewed the reference lists of included papers.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 February 2022 and was last updated on 08 February 2022 (registration number INPLASY202220020).

INTRODUCTION

Review question / Objective: To summarize the existing literature on point-of-care ultrasound in dyspnea, nontraumatic hypotension, and shock.

Rationale: Randomized controlled trials to investigate the value of POCUS in dyspnea, nontraumatic hypotension, and shock are

scarce. Since focused ultrasound is nowadays considered a basic skill, we hypothesize that it should not be withheld from patients and conducting new large studies may not be possible.

Condition being studied: Patients with dyspnea, nontraumatic hypotension, and shock who were assessed using point-of-care ultrasound.

METHODS

Search strategy: The electronic databases PubMed and Embase were searched for publications between October 2001, and October 2021. In the PubMed database we used MeSH terms for our search: ("Ultrasonography"[Mesh] OR "Ultrasonography"[tiab] OR "Echocardiography"[Mesh] OR "Echocardiography"[tiab] OR "lung ultrasound"[tiab] OR "ultrasound"[tiab] OR "LuCUS"[tiab] OR "Point-of-Care Systems"[Mesh] OR "Point-of-Care Testing"[Mesh] OR "POCUS"[tiab] OR "point-of-care-ultrasound"[tiab]) AND ("Dyspnea"[Mesh] OR "Tachypnea"[Mesh] OR "Shock"[Mesh] OR "dyspnea"[tiab] OR "tachypnea"[tiab] OR "shock"[tiab] OR "hypotension"[tiab] OR "respiratory failure"[tiab] OR "pneumonia"[tiab] OR "sepsis"[tiab]) AND ("Emergency Service, Hospital"[Mesh] OR "Intensive Care Units"[Mesh] OR "Patients' Rooms"[Mesh] OR "Medical ward"[tiab] OR "general ward"[tiab] OR "Internal medicine"[tiab] OR "Internist"[tiab] OR "Emergency department"[tiab] OR "ED"[tiab] OR "Intensive Care Unit"[tiab] OR "ICU"[tiab] OR "MET"[tiab] OR "Medical Emergency Team"[tiab]) In the Embase database we used the terms point of care ultrasound/exp AND dyspnea/di OR point of care ultrasound/exp AND hypotension/di.

Participant or population: Adult patients with dyspnea, nontraumatic hypotension, and shock.

Intervention: Clinical assessment using point-of-care ultrasound.

Comparator: Multiple reference standards (for instance final diagnosis, other imaging modality, clinical diagnosis).

Study designs to be included: Prospective and retrospective clinical trials and observational studies

Eligibility criteria: Original studies on adult patients with dyspnea, nontraumatic hypotension, and shock who were assessed using point-of-care ultrasound.

Information sources: The electronic databases PubMed and Embase were searched. In addition we reviewed the reference lists of included papers.

Main outcome(s): Primary outcome measure was diagnostic accuracy.

Additional outcome(s): Secondary outcome measures were mortality rate, admission rate to ICU, length of stay, and duration of treatment.

Data management: Two reviewers independently screened articles for inclusion, and assessed the quality of included studies. Disagreements on study selection were discussed between the reviewers until consensus was reached. All studies were summarized on study objective, study design, main results, and detailed results.

Quality assessment / Risk of bias analysis: Both reviewers assessed the risk of bias of all selected studies using the Cochrane tool for randomized controlled trials and non-randomized studies. Risk assessment was discussed between reviewers until consensus was reached.

Strategy of data synthesis: Since the identified studies were considered too heterogenous a meta-analysis was not conducted.

Subgroup analysis: Not applicable.

Sensitivity analysis: Not applicable.

Language: An English language limit was imposed on the search.

Country(ies) involved: The Netherlands.

Keywords: point-of-care ultrasound; dyspnea; nontraumatic hypotension; shock.

Dissemination plans: Publication in a peer reviewed scientific medical journal.

Contributions of each author:

Author 1 - Bram Kok was involved in developing the research plan, conducted

the systematic search, summarized the results, and drafted the manuscript.

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***Review Stage:** This systematic review has been completed but not published. We had started a scoping review on this subject. Later on we gathered advice from an independent researcher who suggested us that it would be more appropriate to systematically review the existing literature. We acknowledge that a prospective registration of our systematic review process would have been preferred.