

INPLASY

Efficacy and Safety of Ultrasound-Guided Central Venous Catheterization by Resident: A Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - This research did not receive specific funding.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 9 March 2025 and was last updated on 9 March 2025.

INTRODUCTION

Review question / Objective The mastery of central venous catheters guided by ultrasound in the clinic by residents is controversial. This study intends to conduct a meta-analysis of relevant randomized controlled trials to determine the success and safety of ultrasound-guided deep vein catheterization in a clinical setting for residents.

Condition being studied Central venous catheterization is widely used in intensive care and anesthesia. At present, ultrasound-guided central venous catheterization has gradually become an effective clinical protocol. Although ultrasound guidance is widely recommended, residents' mastery of this technology is controversial. Most of the current meta-analyses focus on the operational effects of professional physicians, and relevant studies on residents are relatively lacking.

Studies have shown that when residents perform central venous catheterization with the help of

ultrasound, both the first puncture success rate and operation time are improved. However, some studies suggest that the effect of resident ultrasound guidance is not obvious, and the incidence of complications is still higher than expected. Therefore, the purpose of this study was to evaluate the effectiveness and safety of deep vein catheterization under ultrasound guidance by residents through meta-analysis, and to compare it with traditional body surface marker method, so as to provide a basis for the feasibility of central vein catheterization by residents under ultrasound guidance technology.

METHODS

Participant or population Patients receiving central venous catheterization by a resident.

Intervention Ultrasound guided central vein catheterization.

Comparator Central venous catheterization was performed by landmarker.

Study designs to be included Randomized controlled trials.

Eligibility criteria Inclusion criteria: 1) RCT study, 2) patients were divided into ultrasound-guided group according to different interventions, and the control group was surface landmark guided group. Exclusion criteria: 1) Conference abstracts, 2) lack of full text or significant data missing, and 3) non-English studies.

Information sources PubMed, Embase, and Cochrane Library databases.

Main outcome(s) Success rate.

Quality assessment / Risk of bias analysis Cochrane risk of bias tool will be use.

Strategy of data synthesis Review Manager version 5.4 will be use.

Subgroup analysis None.

Sensitivity analysis None.

Country(ies) involved China.

Keywords resident;Ultrasound; CVC; meta.

Contributions of each author

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Author 2 - Huiwei Chen.

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