

INPLASY PROTOCOL

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None declared.

Diagnoses Value Of Ultrasound for Confirming Endotracheal Tube Placement in Pediatrics: Compared With Radiography

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Review question / Objective: Because anatomic features of children airways is different from adults, it is still a challenge for physician to confirm Endotracheal Tube(ETT) placement in pediatrics.Chest radiography (CXR) as the gold standard allows one to localize the ETT tip and to distinguish between selective intubations, but it has drawbacks.

Condition being studied: As a novel way to assess position of ETT, point-of-care ultrasound (POCUS),which has already show high diagnosis value on adults. Although there are several reviews about how to use POCUS to identify ETT position in childfren, it is necessary to pool the results of the related studies and analyse. Therefore, The aim of the meta-analysis was to assess the diagnostic accuracy Of POCUS for assessment of ETT placement in pediatrics, compared With radiography.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 June 2022 and was last updated on 26 June 2022 (registration number INPLASY202260102).

INTRODUCTION

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in children, it is necessary to pool the results of the related studies and analyse. Therefore, The aim of the meta-analysis was to assess the diagnostic accuracy Of POCUS for assessment of ETT placement in pediatrics, compared With radiography.

METHODS

Participant or population: Children from birth to 18 years old who need endotracheal intubation.

Intervention: Use ultrasound to recognize inappropriate ETT placement.

Comparator: Use radiography such like X-ray or chest radiography to confirm inappropriate ETT placement.

Study designs to be included: Firstly ,the included studies were required to compare the findings of ultrasonography with radiations for confirming the depth or placement of endotracheal tube in patients.Secondly, all included studies need to provide enough information to construct a 2 × 2 column table. Thirdly, included studies have evaluation indicators: sensitivity, specificity, etc.

Eligibility criteria: Studies are irrelevant to the topic or lack of clinical outcomes are excluded. Some of studies like retrospective design studies ,case reports,case series, reviews and statement were excluded,also keep out some studies on cadavers.

Information sources: Electronic databases as Pubmed and Embase.

Main outcome(s): We will get forest plot of included studies and draw the SROC curve. Then calculate the area under the curve.According to the result, we will get the diagnostic accuracy Of POCUS for assessment of ETT placement in pediatrics, compared With radiography.

Quality assessment / Risk of bias analysis: This review will use QUADAS-2 to evaluate quality of the included studies. Two investigators will independently

evaluate each study. Any discrepancies will be resolved through discussion.

Strategy of data synthesis: Stata 14.0 will be used for data analysis.The heterogeneity among the included studies was investigated using Q-statistic and I² index.According to the result,we will choose appropriate model.Funnel plot will be used to evaluate publication bias. Fagan diagram was drawn to evaluate the clinical application value.

Subgroup analysis: If heterogeneity is demonstrated, We will conduct subgroup analyses according to the common methodological or clinical features of the included studies.

Sensitivity analysis: The sensitivity analysis will be conducted by using Stata 14.

Country(ies) involved: China.

Keywords: Ultrasound, Endotracheal Tube, Radiography, Pediatrics.

Contributions of each author:

Author 1 - Jiemei Li - Author 1 did the main work of this review include: researching, data extraction, quality assessment, data analyses and manuscript.

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Author 2 - Yan Liu - Author 2 researched the databases and extracted data. Also, the author evaluated included studies.

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Author 3 - Dong Zhang - The author contributed to verification, data analyses, approved the final manuscript.

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