INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Effects of personal protective equipment on the quality of chest compressions: a meta-analysis of randomized controlled trials

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Review question / Objective: **The purpose of this study was to investigate the effect of wearing personal protective equipment (PPE) on chest compression (CC) during cardiopulmonary resuscitation (CPR).**
Eligibility criteria: **The AHA guidelines for CARDIopulmonary resuscitation (CPR) : Apply compressions at a rate and amplitude sufficient to ensure that the rib cage fully rebounds after each compression. Minimize compression interruption and prevent hyperventilation at a recommended rate of 100-120 beats/min at a recommended depth (adult) of 5-6 cm.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 June 2022 and was last updated on 20 June 2022 (registration number INPLASY202260081).

INTRODUCTION

Review question / Objective: **The purpose of this study was to investigate the effect of wearing personal protective equipment (PPE) on chest compression (CC) during cardiopulmonary resuscitation (CPR).**

Condition being studied: **Effects of personal protective equipment on the quality of chest compressions.**

METHODS

Participant or population: **Patients with chest compression (CC) during cardiopulmonary resuscitation (CPR).**

Intervention: Wear personal protective equipment（PPE）.

Comparator: Without personal protective equipment（PPE）.

Study designs to be included: Randomized controlled trial.

Eligibility criteria: The AHA guidelines for CARDIopulmonary resuscitation (CPR) : Apply compressions at a rate and amplitude sufficient to ensure that the rib cage fully rebounds after each compression. Minimize compression interruption and prevent hyperventilation at a recommended rate of 100-120 beats/min at a recommended depth (adult) of 5-6 cm.

Information sources: Computer retrieval of English databases Pubmed, Embase, The Cochrane Library, Chinese database CNKI, WangFang.

Main outcome(s): Meta-analysis found that chest compression rate and chest compression depth were not statistically significant in the case of using personal protective equipment or not.

Quality assessment / Risk of bias analysis: The quality of 9 articles was evaluated according to the Cochrane Collaboration authenticity evaluation criteria for RCTS.

Strategy of data synthesis: Data was processed by RevMan 5.3 software. Heterogeneity analysis of included studies was tested by I 2. When the statistical heterogeneity between studies was low (P>0.1, I 2 ≤50%), fixed effect model (FE) was used to analyze statistical indicators. If the statistical heterogeneity among studies was high (P≤0.1, II >50%), and the subgroup analysis was invalid after analyzing the reasons for high heterogeneity, the random effects model (RE) was used to analyze the statistical indicators. Publication bias was assessed using funnel plots.

Subgroup analysis: Subgroup analysis was performed according to whether randomized controlled trials were crossover studies or parallel studies.

Sensitivity analysis: Sensitivity analysis was performed using Revman, and combined analysis was performed again after successive exclusion of certain studies.

Country(ies) involved: China.

Keywords: Personal protective equipment,; chest compressions; CARDIopulmonary resuscitation; randomized controlled trials.

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