INPLASY PROTOCOL

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Support: No.

Review Stage at time of this submission: The review has not yet started.

Conflicts of interest: No.

Intravenous versus intraosseous adrenaline administration in cardiac arrest: a protocol for systematic review and meta-analysis

Zhang, W[1]; Liu, Y[2]; Li, D[3]; Jia, Y[4].

Review question / Objective: P: cardiac arrest; I: Patients with an IO route of adrenaline; C: Patients with an IV route of adrenaline; O: ROSC, mortality, immediate untoward effects and neurological outcome at discharge; S: randomized controlled trials.

Condition being studied: Advanced life support as an important link in the life-chain of rescuing cardiac arrest patients, is vital to saving lives. Drug rescue is an important component of advanced life support in cardiac arrest. The AHA's 2018 Advanced Cardiac Life Support (ACLS) algorithm gives the option of either intravenous (IV) or intraosseous (IO) administration of adrenaline in cardiac arrest. IO catheterization, such as in the tibia or humerus, could provide rapid venous route for fluid and drug administration. The IO route has been shown to be quicker to establish and has a higher first-attempt success rate, and it is increasingly utilized. However, the optimal route during resuscitation remains controversial. This study aims to investigate whether IV and IO routes lead to different outcomes in cardiac arrest patients who received drug rescue.

INTRODUCTION

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METHODS

Participant or population: Cardiac arrest.

Intervention: Patients with an IO route of adrenaline.

Comparator: Patients with an IV route of adrenaline.

Study designs to be included: Randomized controlled trials and observation studies.

Eligibility criteria: 1) Patients who did not receive adrenaline or whose adrebaline administration route was unclear. 2) More than one administration route.3) Patients who experienced failed administration attempts through another route.

Information sources: PUBMED, EMBASE, CENTAL, LILACS, Clinical Trials databases and Web of Science. This study regardless of the language and references of all the selected studies were checked as well as the gray literature.

Main outcome(s): ROSC, mortality, immediate untoward effects and neurological outcome at discharge.

Quality assessment / Risk of bias analysis: We plan to use the Cochrane Collaboration's tool for assessing the bias risk for RCTs. The Grading of Recommendations Assessment, Development and Evaluation approach will grade the certainty of the evidence for all the outcome measures across studies. Strategy of data synthesis: The meta-analysis will be performed using RevMan or Stata.

Strategy of data synthesis: The meta-analysis was performed using Review Manager 5.3(Cochrane collaboration), STATA 16.0 and Meta-DiSc.

Subgroup analysis: A subgroup analysis was performed to identify predefined sources of heterogeneity: patient characteristics(age and number) and rescue sites(inside or outside the hospital).

Sensibility analysis: If necessary, an analysis of the sensitivity.

Country(ies) involved: China.

Keywords: cardiac arrest, intravenous, intraosseous, outcome.

Contributions of each author:
Author 1 - Wei Zhang.
Author 2 - Yi Liu.
Author 3 - Dongze Li.
Author 4 - Yu Jia.