INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Defibrillation Strategies for Refractory Ventricular Fibrillation: A systematic review and meta-analysis

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Review question / Objective: This study was to sum up the evidence regarding the effectiveness of new defibrillation strategies for patients with RVF.

Condition being studied: Refractory ventricular fibrillation (RVF) of out-of-hospital cardiac arrest patients remains a global challenge, and there is currently no optimal treatment strategy and management despite advances in defibrillator technology and antiarrhythmic medications. Therefore, new methods of defibrillation (Double defibrillation and Vector-change defibrillation) have been proposed in the hope of improving the prognosis of patients with RVF, however the research results were inconsistent.

INTRODUCTION

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prognosis of patients with RVF, however the research results were inconsistent.

METHODS

Search strategy: All articles available in the English language and published in the PubMed, Cochrane Central, or EMBASE databases were searched individually. The method combines Title/Abstract keywords and Mesh/Emtree was adopted. The search terms were "Ventricular Fibrillation", "double/dual defibrillation" and "vector-change defibrillation".

Participant or population: Adult refractory ventricular fibrillation (RVF) out-of-hospital cardiac arrest patients.

Intervention: "Dual defibrillation" or "Vector-change defibrillation".

Comparator: Standard defibrillation.

Study designs to be included: cohort studies, case control studies or RCTs.

Eligibility criteria: (1) the study participants included were adult RVF out-of-hospital cardiac arrest (OHCA) patients; (2) the study comparative arms were dual defibrillation/vector-change defibrillation and standard defibrillation; (3) the studies were cohort studies, case control studies or RCTs; (4) the study papers were written in English; (5) At least one of the primary or secondary outcomes was reported.

Information sources: PubMed, Cochrane Central, or EMBASE databases

Main outcome(s): The primary outcome was the rate of survival to hospital discharge.

Additional outcome(s): The incidence of survival to hospital admission, termination of VF, return of spontaneous circulation (ROSC), and a good neurologic outcome.

Quality assessment / Risk of bias analysis: The evaluation of the risk of bias for RCTs were based on the principle of the Cochrane Collaboration. In addition, the Newcastle-Ottawa Scale (NOS) was applied to assess the risk of bias for cohort studies and case-control studies.

Strategy of data synthesis: The fixed-effects model was employed to determine the combined relative ratio (RR) and 95% confidence interval (CI) for each outcome if heterogeneity was low, otherwise the random-effects model was used.

Subgroup analysis: Yes.

Sensitivity analysis: Sensitivity analysis was used to test the robustness of the study model if heterogeneity was high.

Country(ies) involved: China.

Keywords: refractory ventricular fibrillation; dual defibrillation; vector-change defibrillation.

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