

INPLASY PROTOCOL

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Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: Questions: Cumulative effects of the ECPR trials on the last reported quality of life (Cerebral performance category) (accomplishing in and/or out of hospital cardiac arrests).

The Extracorporeal Pulmonary Resuscitation Effect on Survival and Quality of Life in Refractory Cardiac Arrest Patients: A Systematic Review of the Literature with Metanalysis and Trial Sequential Analysis

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Review question / Objective: Questions: Cumulative effects of the ECPR trials on the last reported quality of life (Cerebral performance category) (accomplishing in and/or out of hospital cardiac arrests). Cumulative effects of the ECPR trials on the last reported Survival. (accomplishing in and/or out of hospital cardiac arrests).

Eligibility criteria: Inclusion criteria: Adult (> 18 years-old) patients; Refractory cardiac arrest (> 5 min); With or without hypothermia after resuscitation; Witness and assisted cardiac arrests; Any cardiac rhythm of cardiac arrest; Any mechanism of cardiac arrest; In-hospital and out-of-hospital cardiac arrests Extracorporeal cardiopulmonary resuscitation cannulation in any place; Studies with a conventional cardiopulmonary resuscitation paired group (Randomized, propensity score paired and emulated studies).

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 May 2023 and was last updated on 03 May 2023 (registration number INPLASY202350011).

Cumulative effects of the ECPR trials on the last reported Survival. (accomplishing in and/or out of hospital cardiac arrests)

Rationale: ECPR seems a way to improve cardiac arrest outcomes in selected patients; However, the cost can be prohybitive to middle income countries as Brazil. We are planning to start an ECPR program in our hospital, for this, we are

gathering all the evidences in the literature, and propectively collecting the profile of the cardiac arrests in and out - our hospital.

Condition being studied: Cariac arrests resuscitated with ECMO.

METHODS

Search strategy: We are planning the following strategy: ((ECLS) OR (Extracorporeal Cardiopulmonary Resuscitation)) AND ((Quality of life) OR (Survival))

Restrictions:

1. English and Spanish languages.
2. Clinical trial or Randomized controlled trial.

Participant or population: Adult patients with refractory cardiac arrest.

Intervention: Extracorporeal cardiopulmonary resuscitation.

Comparator: Conventional cardiopulmonary resuscitation.

Study designs to be included: Randomized, propensity score paired and emulated studies / **Exclusion criteria:** Case descriptions; Case series; Studies with non-paired controlled group; Studies accomplishing only children and neonates.

Eligibility criteria: Inclusion criteria: Adult (> 18 years-old) patients; Refractory cardiac arrest (> 5 min); With or without hypothermia after resuscitation; Witness and assisted cardiac arrests; Any cardiac rhythm of cardiac arrest; Any mechanism of cardiac arrest; In-hospital and out-of-hospital cardiac arrests; Extracorporeal cardiopulmonary resuscitation cannulation in any place; Studies with a conventional cardiopulmonary resuscitation paired group (Randomized, propensity score paired and emulated studies).

Information sources: Medline, Science direct and Lilacs.

Main outcome(s): Last reported survival and cerebral performance.

Additional outcome(s): None.

Data management: Data will be extracted manually and transcribed in an excel datasheet. Analysis will be done using R and the Copenhagen TSA free software.

Quality assessment / Risk of bias analysis: To assess the risk of bias in the included studies, we will utilize the Risk of Bias 2 (RoB 2) tool.

Strategy of data synthesis: After the first steps of search and data retrieval, data will be analyzed using R software, based on R-Studio IDLE. Odds ratios (ORs) or risk ratios (RRs) with 95% confidence intervals (CIs) will be calculated for the primary and secondary outcomes. Heterogeneity will be assessed using the I² statistic. A random-effects model will be used if significant heterogeneity is found (I² > 50%).

Subgroup analysis: We are planning a sub analysis (if the data allow) of the time of ECPR initiation and quality of life and survival.

Sensitivity analysis: There are no sensitive analysis planned.

Language restriction: English and Spanish.

Country(ies) involved: Brazil.

Other relevant information: None.

Keywords: Extracorporeal membrane oxygenation; Extracorporeal cardiopulmonary resuscitation; Cardiac arrest; Emergency medicine; and Intensive care medicine.

Dissemination plans: We are planning to publish this metanalysis in the Critical Care Sciences journal.

Contributions of each author:

Author 1 - Marcelo Park - Planning, search, data extraction, data analysis, manuscript writting and editing.

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