ECPR After Prolonged Cardiac Arrest: Targeting Mechanisms of the No-Reflow

AWARD AMOUNT: $3M

THE TEAM

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THE PROBLEM

Extracorporeal CPR (ECPR) is emerging as an effective resuscitation strategy for patients who fail to respond to standard CPR. However, a fundamental barrier to ECPR success is the “no-reflow phenomenon.”

No-reflow occurs when blood flow is not restored to vital organs after starting ECPR.

Less than one third of ECPR patients survive with good neurologic outcomes.

Mechanisms of no-reflow remain uncertain.

THE SOLUTION

The team hypothesizes that small blood clots and white blood cells block small blood vessels in vital organs preventing restoration of blood flow when ECPR is used to treat prolonged cardiac arrest.

Use drugs to prevent or dissolve blood clots in small blood vessels.

Evaluate the effect of these therapies on survival and neurologic outcome.

Use a novel white blood cell modulation device (Innovative Biotherapies) to prevent white blood cells from blocking small blood vessels.

Investigating mechanisms of “no-reflow” to improve outcomes of ECPR after prolonged cardiac arrest.

The team will use a clinically relevant swine model of ECPR after prolonged cardiac arrest to provide new fundamental knowledge about the mechanisms of no-reflow.

Elucidate the mechanism of no-reflow after prolonged cardiac arrest.

Build foundation for future clinical trials.

Widespread implementation of ECPR could save up to 10,000 lives per year.

THE HYPOTHESIS

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