Extracorporeal CPR versus conventional CPR for refractory out-of-hospital cardiac arrest: a meta-analysis of randomised clinical trials

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Background: Refractory out-of-hospital cardiac arrest carry poor outcomes. Extracorporeal cardiopulmonary resuscitation (CPR) help restore perfusion and oxygenation in a patient who does not have spontaneous circulation. Recently published randomized clinical trials (RCT) have conflicting evidence supporting use of early extracorporeal CPR and have small sample size.

Purpose: To compare Extracorporeal CPR versus conventional CPR in improving neurologically favorable survival.

Methods: We conducted an electronic database search of all published data for all RCT that compared Extracorporeal CPR versus conventional CPR for refractory out of hospital cardiac arrest and reported on neurologically favorable survival rates. Event rates were compared using a forest plot of odds ratios using a fixed-effects model assuming interstudy heterogeneity.

Results: Three RCT (n= 428; Extracorporeal CPR = 208, conventional CPR = 210) were included in the final analysis. Mean follow-up period 6 months. In our analysis, extracorporeal CPR compared with conventional CPR had favorable effect on survival with a favorable neurologic outcome (OR = 1.71, 95% CI = 1.08-2.71, P = 0.02, I2= 28).

Conclusions: In patients with refractory out-of-hospital cardiac arrest, extracorporeal CPR compared with conventional CPR had favorable effect on survival with a favorable neurologic outcome.