No Benefit to Prehospital Initiation of Therapeutic Hypothermia in Out-of-hospital Cardiac Arrest:

A Systematic Review and Meta-analysis.

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Abstract

OBJECTIVES:

The aim of this review was to define the effect of prehospital therapeutic hypothermia (TH) on survival and neurologic recovery in patients who have suffered out-of-hospital cardiac arrest (OHCA).

METHODS:

Included in this review are randomized trials assessing the effect of prehospital TH in adult patients suffering nontraumatic OHCA. Trials assessing the effect of in-hospital TH were excluded. Only studies with a low risk of bias were eligible for meta-analysis. A medical librarian searched PubMed, Ovid, EMBASE, Ovid Global Health, the Cochrane Library, Guidelines.gov, EM Association Websites, CenterWatch, IFPMA Clinical Trial Results Portal, CINAHL, ProQuest, and the Emergency Medical Abstracts Database without language restrictions. Clinicaltrials.gov was searched for unpublished studies. Bibliographies were hand searched and experts in the field were queried about other published or unpublished trials. Using standardized forms, two authors independently extracted data from all included trials. Results from high-quality trials were pooled using a random-effects model. Two authors, using the Cochrane risk of bias tool, assessed risk of bias independently.

RESULTS:

Of 740 citations, six trials met inclusion criteria. Four trials were at a low risk of bias and were included in the meta-analysis (N = 715 patients). Pooled analysis of these trials revealed no difference in overall survival (relative risk [RR] = 0.98, 95% CI = 0.79 to 1.21) or good neurologic outcome (RR = 0.96, 95% CI = 0.76 to 1.22) between patients randomized to prehospital TH versus standard therapy. Heterogeneity was low for both survival and neurologic outcome ($I^2 = 0$).

CONCLUSIONS:

Randomized trial data demonstrate no important patient benefit from prehospital initiation of TH. Pending the results of ongoing larger trials, resources dedicated to this intervention may be better spent elsewhere.

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