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Review

Vasopressors during adult cardiac arrest: A systematic review and meta-analysis



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Abstract

Aim: To systematically review the literature on the use of vasopressors during adult cardiac arrest to inform an update of international guidelines.

Methods: PRISMA guidelines were followed. We searched Medline, Embase, Web of Science, CINAHL, and the Cochrane Library for controlled trials and observational studies. The population included adults with cardiac arrest in any setting. Pairs of investigators reviewed studies for relevance, extracted data, and assessed the risk of bias for individual studies. Certainty of evidence was evaluated using GRADE for controlled trials and meta-analyses were performed when at least two studies could be pooled.

Results: We included 15 controlled trials and 67 observational studies. The majority of studies included out-of-hospital cardiac arrest only. Meta-analyses were performed for two controlled trials comparing epinephrine to placebo, three comparing vasopressin to epinephrine, and three comparing epinephrine plus vasopressin to epinephrine only. All controlled trials ranged between low to some concern in risk of bias. The certainty of evidence ranged from very low to high. Risk of bias for observational studies was generally critical or serious, largely due to confounding and selection bias.

Conclusions: Controlled trial data suggest that epinephrine improves return of spontaneous circulation, survival to hospital discharge, and 3-month survival in out-of-hospital cardiac arrest. The improvement in short-term outcomes appeared more pronounced for non-shockable rhythms.