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Therapeutic hypothermia may improve neurological outcome of cardiac arrest in adults

Nordine Nekhili [1], Daniel Meyran [2], Patricia Jabre [3], Cochrane Pre-hospital and Emergency Care Group

CONTEXT

Neurological prognosis after resuscitated cardiac arrest is challenging to determine. Early resuscitation is essential for a favorable outcome. Experimental studies suggest that therapeutic hypothermia (TH) may have beneficial effects, and several clinical trials have investigated this intervention.

CLINICAL QUESTION

What are the benefits and harms of TH (target temperature 32–34 °C) in adults after resuscitated cardiac arrest, compared with standard treatment?

BOTTOM LINE

TH may be associated with better neurological outcome than standard treatment, even at a maintained temperature of 36 °C (low level of evidence). Subgroup analyses indicate that TH offers better chances of neurological recovery than no cooling or fever prevention (temperature >36 °C) (low level of evidence). In contrast, data do not suggest a difference between TH and fever control or temperature management at 36 °C (low level of evidence).

Regarding survival at short, medium, and long-term follow-up, TH shows little or no difference compared with standard treatment, with or without active cooling to 36 °C (low level of evidence).

Concerning adverse effects, TH may lead to a slight increase in the incidence of pneumonia and severe arrhythmia (low level of evidence). Evidence is very uncertain regarding the effect of TH on the risk of hypokalaemia (very low level of evidence).

Two studies assessed quality of life at six months, but the evidence was insufficient to draw conclusions.

Cochrane Pre-hospital and Emergency Care

Corresponding Author

Patricia Jabre
(Samu de Paris, AP-HP, Necker-Enfants Malades Hospital, Paris, France)
patricia.jabre@aphp.fr

A complete list of the Authors'Affiliations is available at the end of the article.

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CAVEATS

Several sources of bias were identified in the included studies; two studies were considered at high risk of bias.

Standard cooling methods were employed in all studies, such as ice packs or cooling pads. Only one study used hemofiltration, but its data could not be pooled with the others.

Further research is needed to develop optimal cooling protocols, clarify the timing of TH initiation, and determine the target temperature and dose response effects.

Authors' details

1. SMUR, Gonesse, France
2. BMPM, Marseille, France
3. Samu de Paris, AP-HP, Necker-Enfants Malades Hospital, Paris, France

Author contributions

All authors contributed equally and validated the final version of record.

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Declarations

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Registration

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Data availability statement

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