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## Therapeutic Hypothermia after OHCA: Wider Use Justified?

# Therapeutic Hypothermia

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A meta-analysis of therapeutic hypothermia (TH) after out-of-hospital cardiac arrest (OHCA) concludes that it is associated with a survival and neuroprotective benefit, even when including patients with non-shockable rhythms, more lenient downtimes, unwitnessed arrest and/or persistent shock after return of spontaneous circulation (ROSC).

Therapeutic hypothermia after OHCA has been an established, evidence-based intervention since the 2000s. It is recommended in unconscious survivors of OHCA stemming from ventricular fibrillation, but in other cases there is a lack of evidence, wide variation in practice and lack of agreement on target temperature. An updated meta-analysis (including publications up to July 2014), published in *Resuscitation*, by Aldo L. Schenone, Cleveland Clinic, USA, and colleagues, assesses the performance of TH after OHCA on hospital mortality and good neurological outcome at hospital discharge when treating patients inside and outside the initial criteria of the landmark trials. Their article also includes a systematic review and pooled analysis to determine the impact of different temperature goals on outcomes at discharge.

See Also: [Wakening After Therapeutic Hypothermia after OHCA - Give it Time](#)

The review included studies that enrolled patients 15 years or older who remained comatose after OHCA with any initial rhythm. No restrictions were applied to downtime, resuscitation by bystander, witnessed arrest or persistent shock after resuscitation. Only studies that compared TH versus normothermia were included. The researchers performed a pooled analysis of grouped cohorts from included studies based on the average temperature achieved during TH.

### Results

Eleven studies (3 randomised controlled trials and 8 cohort studies) that included 1381 patients with a mean age of 61.3 years, were analysed. Shockable rhythms accounted for 51.6% of all arrests with arrest downtimes ranging from 20 to 34.6 min. Most patients did not receive bystander resuscitation. Three studies compared two different levels of targeted temperature during TH.

TH after OHCA decreased mortality (OR 0.51, 95%CI [0.41–0.64]) and increased the odds of survival with good neurological outcome (OR 2.48, 95%CI [1.91–3.22]), and this applied when the RCTs and cohort studies were separately analysed. The researchers found no difference in reported outcomes based on the targeted temperature level during TH, and no temperature level was found to be superior to another, although the number of studies is low.

### Future

The authors conclude that since TH is shown to benefit a broader spectrum of patients than is currently recommended: “perhaps clinical guidelines need to strongly favour TH in all patients with cardiac arrest.” However they advise caution that TH is not used in inappropriate patients populations, as it has resource implications. They write: “Perhaps, the exclusion of these patients should be based on pre-existing functional status, severity of illness in the acute setting, risk of coagulopathy or other adverse events, and not based on the initial rhythm, witness of arrest, or persist shock after ROSC.”

Salim Surani, Texas A&M University and University of North Texas, USA, with Joseph Varon, University of Texas Health Center, call the results “quite interesting and thought-provoking”. They argue that it is not reasonable to try to establish a single target temperature or duration of therapy, in patients that have cardiac arrest due to a variety of different clinical situations. They conclude: “we should not deprive those patients that require this therapeutic intervention in remote areas due to a long downtime or a delay in initiation of therapy.”

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