

Therapeutic Hypothermia after Cardiac Arrest in Children



Research presented at the Pediatric Academic Societies Annual Meeting in San Diego and published simultaneously in the New England Journal of Medicine has found that therapeutic hypothermia is no more effective than normal temperature control for children after cardiac arrest.

The NIH/National Heart, Lung and Blood Institute-funded research was a large, multicentre study that showed that emergency body cooling does not improve survival rates or reduce brain injury in infants and children with out-of-hospital cardiac arrest more than normal temperature control.

Therapeutic hypothermia has been shown to improve survival and health outcomes for adults after cardiac arrest and for newborns with brain injury due to a lack of oxygen at birth. This research was the first time the treatment has been studied in infants or children admitted to hospitals with cardiac arrest.

"Our results show that therapeutic hypothermia is no more effective for treating children after out-of-hospital cardiac arrest than maintaining body temperature within the normal range," said co-principal investigator Frank W. Moler, MD, a professor in the Department of Pediatrics and Communicable Diseases at the University of Michigan, Ann Arbor. "Both treatments help to control fever and result in similar outcomes for patients."

The study included 295 participants from 2 days to 18 years old who were admitted to children's hospitals for cardiac arrest, required chest compressions for at least two minutes and remained dependent on mechanical ventilation to breathe. One treatment group received body cooling for two days followed by three days of normal temperature control. The other group received normal temperature control for five days.

During the treatment, study participants lay between special blankets. Pumps circulate water through tubes in the blankets to maintain specific body temperature ranges: either a lower range of 89.6-93.2 degrees Fahrenheit or a normal range of 96.8-99.5 degrees Fahrenheit.

One year after treatment, researchers observed no difference in survival or cognitive function between groups.

The researchers are also examining body cooling in hospitalised patients who suffer cardiac arrest, in a separate study. A goal of both studies is preventing fever, which commonly occurs after cardiac arrest and can lead to more severe outcomes.

The studies form part of the Therapeutic Hypothermia after Pediatric Cardiac Arrest (THAPCA) trials, the largest examination of therapeutic hypothermia in children other than newborns for any health condition to date.

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