

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TOPIC: THERAPEUTIC HYPOTHERMIA SAVES NEWBORNS LIKE ADALYNE
REPORT: MB #4778

BACKGROUND: Therapeutic hypothermia is a type of treatment with proven neuroprotective effects in global cerebral ischemia. Prerequisites for hypothermia include cardiac arrest and neonatal asphyxia. The two main types of therapeutic hypothermia are surface and endovascular cooling. Cooling should begin as soon as it is indicated for maximum neuroprotection and edema blocking effect. Therapeutic hypothermia has proven to improve neurologic outcome and decreases mortality in patients. For effective treatment, optimal induction methods and rewarming methods are still being extensively studied.
(Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3519955/>)

NEWBORNS: Surface cooling has been regarded as an effective intervention measure to decrease risk of adverse neurological outcomes for perinatal asphyxia newborn patients. There is a strict indication criterion for cooling and care is taken not to overheat infants before introducing them to cooling. Cooling involves lowering a patient's core temperature to between 33.0 and 34.0°C. Cooling continues for a 72- hour period before careful rewarming. Some more severe patients may require earlier rewarming. Infants do not need to be ventilated or intubated during cooling and should only be assessed on an individual basis. Cold is a noxious stimulus, during cooling, patients may be given a morphine infusion to keep them comfortable.
(Source: <https://www.starship.org.nz/guidelines/cooling-therapeutic-hypothermia-in-the-neonate/>)

COOLING BENEFITS: Katherine Meddles, MD a pediatric neurologist says, "We put electrodes on the top of their head over the scalp and monitor their electrical activity, the brainwave activity of their brain. We're looking, in particular, for seizures because babies who've had a difficult delivery are at high risk for having seizures in that time period. And that way we can treat the seizures and try to minimize any further injury that might come from uncontrolled seizures." Cooling cannot reverse damage already done but is used to help interrupt the destructive process. Cooling can help to prevent cerebral palsy, epilepsy, developmental delays, learning disabilities and neonatal encephalopathy. Neonatal encephalopathy occurs in 1.5 per 1,000 livebirths. About 15 to 20 percent of affected newborns die in the postnatal period and an additional 25 percent will sustain childhood disabilities. Six randomized clinical trials of induced therapeutic hypothermia at 33 to 34°C for 72 hours showed a decrease in mortality and disability up to two years old and this neuroprotection continues further into childhood.

(Source: Katherine Meddles, MD Pediatric Neurologist, Rocky Mountain Hospital for Children, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5953210/#R1>)

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com