Can lowering body temperature prevent brain damage in children who suffer cardiac arrest?

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In the first large-scale study of its kind, researchers at the University of Michigan's C.S. Mott Children's Hospital and the University of Utah will lead a multi-center study to investigate whether hypothermia-lowering body temperature-can prevent or reduce brain damage in children deprived of oxygen after a cardiac arrest.

The Therapeutic Hypothermia After Pediatric Cardiac Arrest (THAPCA) Trials begin this fall. The National Heart, Lung and Blood Institute, part of the National Institutes of Health, will provide funding for the Vanguard phase, and pending successful completion of that phase, for a total of six years of subject accrual from 30 trial sites, and up to 900 participants in the United States and Canada.

Frank W. Moler, M.D., M.S., medical director of the Mott pediatric intensive care unit and professor of pediatrics at the U-M Medical School, is the scientific principal investigator, while J. Michael Dean, M.D., MBA, H.A., and Edna Benning Presidential professor of pediatrics at the University of Utah School of Medicine and Primary Children's Medical Center, Salt Lake City, is principal investigator for the data center.

Every year, thousands of children suffer cardiac arrest as complications from illnesses or as the result of accidents, such as near-drowning.

When the heart stops working during a cardiac arrest, the body's blood supply is interrupted and cells are deprived of oxygen. Brain cells are particularly vulnerable to oxygen loss, leading to sometimes devastating brain damage in children.

"Cardiac arrest in children is a tragic event that usually leads to death, or long term disability in survivors," says Moler. "Currently no therapies have been shown to improve children's chances of recovering."

The THAPCA Trials will look at children who experience cardiac arrest while already hospitalized and have cardiac arrest related to another condition or disease and those who have cardiac arrest after an event or sudden illness outside the hospital.

Children in the trials will be randomly assigned into two actively managed therapy groups: those whose body temperatures will be lowered to 32-34 degrees C through surface cooling called therapeutic hypothermia and those whose body temperatures are actively kept in the normal range 36.0-37.5 degrees C also by surface cooling, sometimes called therapeutic normothermia.

In the initial funding for the Vanguard phase, U-M has received $2.3 million to get the trials underway and the University of Utah has received $1.3 million.

"Performing definitive studies, that allow researchers to examine therapies like therapeutic hypothermia, is challenging because it depends on the cooperation of multiple children's hospitals and significant financial resources," Moler says.

Source: University of Michigan Health System (news : web)