

Benefits of Brain Cooling After Stroke Being Explored

UC San Diego Stroke Center Collaborates in Multicenter NIH Clinical Trial on Benefits of Hypothermia for Stroke

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Local researchers at UC San Diego Medical Center are collaborating with Cedars-Sinai Medical Center in Los Angeles, and University of Texas Health Science Center at Houston (UTHealth) on the largest clinical trial of hypothermia (brain cooling) for stroke to date. Brain cooling has been shown to decrease brain swelling and reduce loss of neurologic function after an acute stroke. Named "The Intravascular Cooling for Acute Stroke 2/3" (ICTus-2/3), this trial will look specifically at whether hypothermia improves patient outcomes after ischemic stroke.

Set to begin later this spring, the three-and-a-half-year study will enroll 400 patients and is funded by two grants from the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health. A UC San Diego grant includes funding for 18 study sites, while a UTHealth grant will fund eight sites. Most of the sites are in the United States, but some are in Europe.

Thomas Hemmen, MD, PhD, director of the UC San Diego Stroke Center will lead the ICTuS study at UC San Diego Medical Center.

"Utilizing hypothermia in cardiac arrest patients to prevent blood shortage to the brain is already a proven practice, one discovered and refined at UCSD," said Dr. Hemmen. "Applying these therapies, with new technologies and devices specific to the needs of the stroke patient, in who blood flow to the brain is affected, is an exciting advancement."

Principal investigator Patrick D. Lyden, MD, chairman of the Department of Neurology, will head the study at Cedars-Sinai and James C. Grotta, MD, chairman of the Department of Neurology at UTHealth.

In the ICTuS 2 trial, investigators will use an endovascular temperature modulation system from Philips Healthcare. Endovascular cooling provides rapid heat exchange and very fast cooling toward target temperature; in patients who are awake, endovascular cooling is generally superior to cooling blankets or ice packs in maintaining tight temperature control around the target temperature.

Cooling is achieved by inserting a special catheter into the inferior vena cava - the body's largest vein. No fluid enters the patient; instead, an internal circulation within the catheter transfers heat out. Study participants are covered with a warming blanket to "trick" the body into feeling warm, and temperature sensors in the skin and a mild sedative help suppress shivering. In this study, body temperature will be cooled to 33 degrees C (92.4 degrees F) and maintained at that level for 24 hours.

At the conclusion of the cooling period, participants will be re-warmed over 12 hours. ICTuS 2 is a single-blind, randomized trial. To be included, patients must meet certain age and medical criteria, treatment must begin within three hours of stroke onset, and patients must receive intravenous injection of tissue plasminogen activator (tPA), a "clot-busting" medication.

For more information on the UC San Diego Stroke Center and treatments available visit <http://health.ucsd.edu/specialties/stroke>

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