



FACT SHEET: Therapeutic Hypothermia and Sudden Cardiac Arrest Recovery

Therapeutic hypothermia — where a patient's core body temperature is cooled to slow down the functions of the major organs — is a growing and promising trend in the immediate, post-resuscitation care of sudden cardiac arrest (SCA) survivors. Researchers and physicians are reporting remarkable recovery, especially as it relates to full or nearly-intact neurological function for patients who survive a cardiac arrest and are provided quick access to hypothermic treatment.

The goal of therapeutic hypothermia is to limit damage to the heart, brain, and other vital organs in order to limit permanent damage to SCA survivors. It is now recognized that an extended period of low blood flow initiates a series of metabolic and inflammatory responses, which are detrimental to cellular function and tissue survival. The re-initiation of normal blood flow and delivery of oxygen can interact with these response cascades to lead to greater cell damage. Therapies such as hypothermia and glucose control can help to limit this damage.

Cooling the core temperature to approximately 90-93 degrees Fahrenheit has been shown in two large human trials and previously in animal studies to improve the ultimate survival and neurological outcomes in victims of SCA. Most experts believe it is most effective to begin cooling as soon as possible after the return of spontaneous circulation (ROSC) and to continue this therapy for 24 to 48 hours based on patient condition. Hypothermia can now be initiated effectively through fairly low-tech methods such as administration of chilled saline solution intravenously, which can be done by EMS providers in the field. A device that cools the IV fluid as it is infusing is also now available.

In the hospital emergency room and intensive care unit, additional methods to achieve and maintain the desired level of hypothermia are available. These include invasive devices such as cooling catheters, which are inserted into large blood vessels, and less invasive devices such as special gel pads applied to the skin. These pads contain a tubing system through which coolant is pumped from a control module. Cooling blankets can also be helpful.

The American Heart Association (AHA) has issued recommendations to encourage the practice of therapeutic hypothermia as a standard of care in SCA post-resuscitation care. While most experts support the benefit and importance of post-resuscitation hypothermia, many resuscitated SCA victims do not receive this therapy. There are a variety of reasons for this, including the historically slow adoption of new therapies by



medical providers, the fact that few physicians have a dedicated interest in resuscitation, and that there is no hot drug or device (with FDA indication for this specific condition) for manufacturers to promote. This trend, however, is beginning to change. Hospital systems like Virginia Commonwealth University in Richmond, the University of Pennsylvania in Philadelphia, and the University of Pittsburgh Medical Center have been leaders in the research and implementation of both pre-hospital and in-hospital programs. In January 2009, New York City implemented a city-wide policy that directs emergency medical service providers to transport SCA patients only to hospitals that have hypothermic treatment capabilities. These and other initiatives across the country are leading to dozens of hospitals implementing programs of their own.

SCAA recognizes the value of therapeutic hypothermia and advocates for its adoption in local communities. Increasingly, EMS agencies are initiating this therapy in the field and transporting resuscitated patients to dedicated cardiac arrest centers when possible. As this trend grows, the result will be more SCA survivors who are able to quickly return to full health and an active life.

The Sudden Cardiac Arrest Association's mission is to prevent loss of life from sudden cardiac arrest. We seek to increase awareness, encourage training for immediate bystander action, increase public access to defibrillation and promote the use of available medical devices and therapies, principally, implantable cardioverter defibrillators (ICD). SCAA members are the beneficiaries of improved science and medical technology, coupled with the wisdom and caring of thousands of physicians. For more information, please visit us at www.suddencardiacarrest.org