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Hypothermia proves successful in younger cardiac patients too

Young adult patients with genetic heart diseases, such as hypertrophic cardiomyopathy (HCM), substantially benefitted from therapeutic hypothermia, which could further extend the role for this treatment strategy in new patient populations, according to a scientific presentation at the American College of Cardiology (ACC) Scientific Sessions in New Orleans, April 1-3.

In patients with HCM, despite rapid cardiopulmonary resuscitation (CPR) with defibrillation, survival following out-of-hospital cardiac arrest has been particularly unfavorable, explained the study authors.

"Therapeutic hypothermia is an effective survival and neuroprotective treatment strategy increasingly employed in unconscious patients with out-of-hospital cardiac arrest and restored spontaneous circulation," explained the study's senior author Barry J. Maron, MD, director of the Hypertrophic Cardiomyopathy Center at the Minneapolis Heart Institute Foundation in Minneapolis. "However, there are no reports of therapeutic hypothermia employed in the patients with HCM."

Retrospectively examining patient records at Minneapolis Heart Institute® at Abbott Northwestern Hospital in Minneapolis and Tufts Medical Center in Boston, the researchers found that seven young, asymptomatic patients with HCM (mean age 43), unexpectedly incurred cardiac arrest within a 46-month period, and survived after receiving therapeutic hypothermia.

"This success rate was unexpectedly high, especially given the experience with HCM and the CPR/defibrillation era" Maron said.

The researchers found that the response was prompt at both facilities, including: collapse to resuscitation within three minutes; transport from collapse to the hospital for initiation of cooling (mean of 172 minutes); and the initial Glasgow coma score was 3 in each patient. Therapeutic hypothermia was administered with rapid cooling to 31° to 33° Celsius core body temperature for 24-29 hours, with intact cardiac function and complete restoration of normal neural, cerebral and cognitive functions six to 52 months after the event.

While several reversible complications occurred, each patient survived with neuroprotection, preserved cognitive function and intact cardiac function six to 52 months after their event, the researchers reported.

Hypothermia was successful despite HCM risk factors, including marked left ventricular wall thickness of more than 20 mm in six patients, outflow obstruction, asystole initially in one patient and a long delay to cooling of more than four hours in one patient.

"These findings support the idea of more widespread availability and utilization of therapeutic hypothermia, due to its successful outcomes with out-of-hospital cardiac arrest," Maron concluded. "Previous research of therapeutic hypothermia has focused on older patient populations, but this study proves the worth of this technique in younger patients with genetic disease."

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Minneapolis Heart Institute Foundation

The Minneapolis Heart Institute Foundation is dedicated to creating a world without heart disease through groundbreaking clinical research and innovative education programs. MHIF's mission is to promote and improve cardiovascular health, quality of life and longevity for all.

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