

Hypothermia Therapy Urged After Cardiac Arrest

BY JANE SALODOF MACNEIL
Contributing Writer

PHOENIX, ARIZ. — Therapeutic hypothermia after cardiac arrest offers proven neurological benefits to patients and should be implemented in hospitals worldwide, Simon R. Dixon, M.B., said at a congress of the Society of Critical Care Medicine.

Only about 20 hospitals in the United States are doing therapeutic hypothermia, said Dr. Dixon, codirector of cardiovascular research at William Beaumont Hospital in Royal Oak, Mich.

Medical staffs have been slow to adopt hypothermia, despite an International Liaison Committee on Resuscitation (ILCOR)

task force advisory statement (Circulation 2003;108:118-21) endorsing its use after cardiac arrest, he said.

"This statement should really serve as a call to action to physicians around the world that hypothermia is here, and we should be doing it to improve care to our patients," he said. "And it's discouraging that even though this statement was issued 2 years ago, adoption of this therapy is so slow throughout the world."

Although much effort goes to improving resuscitation of cardiac patients, little has been done to improve neurologic dysfunction. "It is important to remember that neurological aspects determine the longevity or most of the disability in these patients when they go home," he said.

The ILCOR statement followed two trials that found patients had better outcomes if given therapeutic hypothermia after cardiac arrest.

The percentages of hypothermia patients with favorable neurologic recovery were 49%—versus 26% for a control group—in an Australian study (N. Engl. J. Med. 2002;346:557-63) and 55%—versus 39% for controls—in a European study (N. Engl. J. Med. 2002;346:549-56).

Other studies, published (Am. J. Physiol. Heart Circ. Physiol. 2002;282:H1584-91) and ongoing, have also indicated that therapeutic hypothermia can reduce the size of an infarction, Dr. Dixon noted.

"These two trials suggest if the heart can be cooled adequately by the time angioplasty is done, probably there will be benefit from hypothermia," he said, citing the Cooling for Myocardial Infarction (COOL MI) and Intravascular Cooling Ad-

junction to Primary Coronary Intervention (ICE-IT) studies.

Dr. Dixon concluded that evidence clearly shows hypothermia to be safe and effective. Nonetheless, training requirements and fear of side effects have so far inhibited wider use, he said.

Session moderator Stefan A. Mayer, M.D., a consultant to and shareholder in several hypothermia device companies, also urged greater use of the therapy in cardiac cases. Dr. Mayer, director of critical care neurology at Columbia University, New York, warned that uncontrolled fever can be damaging and ongoing in ischemia and in stroke.

"In cardiac arrest you've got to make them hypothermic," he said. "Why wait for a patient to get febrile and try to get it [temperature] down? That's like waiting for the toothpaste to get out of the tube and try to get it back." ■

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One Hospital's Experience With Therapeutic Hypothermia

Therapeutic hypothermia is not risk free, but its side effects are predictable and can be managed, according to a physician who has 8 years' experience cooling critically ill patients at the Free University Medical Center in Amsterdam.

"Our treatments can have severe side effects, but the good news is most side effects of hypothermia can be prevented or controlled. So fear of side effects should not prevent you from using this," internist/intensivist Kees H. Polderman, M.D., said at a congress of the Society of Critical Care Medicine.

The optimal duration and depth of cooling and time to re-warming have yet to be determined, Dr. Polderman said. Nonetheless, he maintained that therapeutic hypothermia could be used safely for cardiac protection as well as neural protection.

"Start cooling as early and as quickly as possible, both to produce the effects we are looking for and to reduce the severity of some side effects," he advised. "Do not rewarm too fast."

Dr. Polderman encouraged physicians to educate themselves on the physiologic changes and

side effects that can be expected before starting hypothermia. They need to know "which are harmful, which we can treat, and which we can ignore," he said.

Among high-risk side effects, Dr. Polderman cited coagulopathy, impaired coagulation cascade, electrolyte disorders, and hypovolemia. He warned that insulin sensitivity and insulin secretion both decrease, so physicians need to monitor glucose and to be prepared to avert hyperglycemia. Amylase, platelets, and white blood cells also need to be monitored, he said.

The hospital laboratory must be told that the patient is being cooled because temperature can alter laboratory test results. In addition, pharmacokinetics of some medications can change, but for many drugs these effects are not yet known, he warned.

Dr. Polderman listed manifest bleeding, severe coagulation disorders, airway and wound infections, and myocardial ischemia as low-risk events. Manifest pancreatic and intracerebral bleeding are rare, he said. Patients undergoing long-term cooling need antibiotic prophylaxis and protection against bedsores, he advised.

Duration of CPR Almost Twice as Long When Started Before Arrival at Hospital

BY JANE SALODOF MACNEIL
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PHOENIX, ARIZ. — Despite an American Heart Association recommendation that cardiopulmonary resuscitation stop if patients do not respond within 30 minutes, a review of one emergency department's experience found the average effort lasted significantly longer.

Mean total resuscitation time was 66 minutes when cardiopulmonary resuscitation (CPR) began before the patient arrived at the hospital, and 36 minutes if CPR was started in the emergency department, emergency physicians Lara Wagner, M.D., and Jared Strote, M.D., reported at a meeting sponsored by the Society of Critical Care Medicine.

The duration of CPR was also significantly longer in medical cases than in trauma cases, a difference that was statistically significant. A chart review of failed attempts showed average times of 73 minutes and 51 minutes, respectively. The av-

erage for all attempts was 55 minutes.

"It appears a lot was due to the clock being restarted when paramedics arrived at the emergency department," said Dr. Strote of the University of Washington Medical Center in Seattle. One possibility, he suggested, was that "the doctors were not taking into account all the resuscitation that was happening in the field."

Another explanation could be that the paramedics or the emergency physicians thought they saw a response in the patients who arrived by ambulance, said Dr. Wagner, a resident at the university. "At any point during resuscitation efforts, did they ... regain a rhythm and start again?" she asked.

The study reviewed charts of 126 patients who died after resuscitation attempts from September 2001 to August 2003. These included 76 trauma cases and 50 medical arrests. In 83 cases, CPR was started before the patients arrived in the emergency department; the other 43 patients went into arrest in the ED.

Thirteen patients had "Do not resuscitate" orders.

Analysis by age, gender, and race did not turn up significant differences, the authors reported. They speculated that the longer time spent in medical cases "may be due in part to longer medical arrest field resuscitation time versus a 'scoop and run' trauma arrest strategy."

The phenomenon needs to be addressed, according to Dr. Strote, because longer-than-appropriate resuscitation times can be harmful. "It's hurting other patients in terms of resources that are being used," he said. "And after 30 minutes, [the resuscitated patients'] chance of reasonable recovery is near zero, but there does remain a chance they will recover with brain damage or significant organ damage."

The ongoing study has been expanded to review more patients and more years, Dr. Wagner added. "We're looking to see what is going on in the 30 minutes or so before they arrive at the ED," she said. ■

Post-MI Depression Is Most Common In Younger Women

NEW ORLEANS — Younger women with acute MI are a particularly high-priority target population in terms of screening for and treatment of postinfarct depression, Susmita Mallik, M.D., said at the annual scientific sessions of the American Heart Association.

She reported on 2,501 patients admitted with acute MI to 19 U.S. medical centers participating in the Prospective Registry Evaluating Outcomes After Myocardial Infarction: Events and Recovery (PREMIER) study. Roughly half the patients were age 60 or younger, and 815 participants were women.

The prevalence of in-hospital depression—defined by a score of at least 10 on the Primary Care Evaluation of Mental Disorders Brief Patient Health Questionnaire—was 40% in women and 22% in men age 60 or younger, and 21% in women and 16% in men above age 60, reported Dr. Mallik of Emory University, Atlanta.

After adjusting for race, comorbid conditions, smoking status, and other potential confounders, the odds of experiencing in-hospital depression following an acute MI were nearly fourfold greater in women under age 60 than in men over age 60.

This observation is in keeping with findings from community-based studies showing that the prevalence of depression is higher in young women than other segments of the general population, she added.

—Bruce Jancin