

# Groups Urge Treatment of Post-Arrest Syndrome

BY ELIZABETH MEHCATIE

Senior Writer

**S**trong evidence shows that prompt treatment of patients who are successfully resuscitated after cardiac arrest can improve outcomes, including mortality, according to a consensus statement on post-cardiac arrest syndrome.

Post-cardiac arrest syndrome, a new term proposed by the authors of the statement, “is a unique and complex combination of pathophysiological processes,” they said. The components are brain injury; myocardial dysfunction; the systemic ischemia/reperfusion response (including intravascular volume depletion, impaired oxygen delivery and utilization, and increased susceptibility to infection); and the underlying disease that caused the arrest (such as acute coronary syndrome [ACS] or pulmonary disease), which contribute to the high mortality rate among patients who are resuscitated, according to the statement. But this syndrome “will not occur” if resumption of spontaneous circulation (ROSC) is rapidly achieved after a cardiac arrest, they said.

They also point out that an increasing body of evidence suggests that the components of post-cardiac arrest syndrome are “potentially treatable” and “provides the essential proof of concept that interventions initiated after ROSC can improve outcome.”

The statement, which focuses on the epidemiology, pathophysiology, and prognostication of post-cardiac arrest syndrome, is intended to “provide a resource for organization of post-cardiac arrest care,” and to identify areas of research that could potentially improve outcomes of patients who are successfully resuscitated after a car-

diac arrest. It was issued by the International Liaison Committee on Resuscitation and other medical organizations, and published online in *Circulation* (doi:10.1161/CIRCULATIONAHA.108.190652).

“Resuscitation of the cardiac arrest patient does not end when the patient regains a pulse,” at which point, the patient has only has a 30% chance of surviving to hospital discharge, Dr. Robert W. Neumar, head of the statement writing committee, said in an interview.

Interventions initiated after a pulse is restarted will improve outcomes, and include therapeutic hypothermia and percutaneous coronary intervention (PCI) for ST-segment elevation myocardial infarction (STEMI), which is common in patients with out-of-hospital cardiac arrest, noted Dr. Neumar, associate professor of emergency medicine and associate director of the Center for Resuscitation Science at the University of Pennsylvania, Philadelphia.

The statement points out that the overall prognosis after ROSC has not improved since the first large report on patients treated for cardiac arrest was published in 1953, reporting an in-hospital mortality rate of 50%. The authors cite the National Registry of CardioPulmonary Resuscitation, published in 2006, which found that in-hospital mortality was 67% among nearly 20,000 adults and 55% among 524 children who regained spontaneous circulation after a cardiac arrest. These rates also vary by region and institution, and despite advances that have improved ROSC rates, they have not translated into improvements in hospital discharge rates and long-term survival.

Recommendations for treatment strategies include using mild therapeutic hypothermia (cooling down to 32°C to 34°C, or 86.9°F to 93.2°F for at least 12-24 hours), start-

ed as soon as possible for unconscious adults with who are successfully resuscitated outside of the hospital after a cardiac arrest. Preclinical and clinical data “strongly” support the use of this modality as an effective treatment for post-cardiac arrest syndrome, the authors wrote.

They also recommend immediate coronary angiography for patients with electrocardiographic evidence of STEMI, “with subsequent PCI if indicated,” or thrombolytic therapy if PCI is not available. In consideration of how common ACS is among patients who have a cardiac arrest outside of the hospital, it is “appropriate” to consider angiography whenever ACS is suspected in post-cardiac arrest patients, they added.

Other recommendations include prompt treatment of prolonged seizures, frequent monitoring of blood glucose, treatment of hyperglycemia, and avoidance of unnecessary arterial hyperoxia.

The statement includes a section on post-cardiac arrest prognostication. “We need to reevaluate how we prognosticate poor outcomes in post-cardiac arrest patients,” Dr. Neumar said in the interview. “With the advent of neuroprotective interventions such as therapeutic hypothermia, currently used prognostication strategies may not be reliable.”

The statement was from the International Liaison Committee on Resuscitation (the American Heart Association, Australian Resuscitation Council, the Heart and Stroke Foundation of Canada, InterAmerican Heart Foundation, Resuscitation Council of Asia, Resuscitation Council of South Africa, and the New Zealand Resuscitation Council) and the AHA Emergency Cardiovascular Care Committee; Council on Cardiovascular Surgery and Anesthesia; Council on Cardiopulmonary, Perioperative, and Critical Care; Council on Clinical Cardiology; and the Stroke Council. It was endorsed by the American College of Emergency Physicians, Society for Academic Emergency Medicine, and Society of Critical Care Medicine. ■



**‘We need to reevaluate how we prognosticate poor outcomes in post-cardiac arrest patients.’**

DR. NEUMAR

## Aspirin Boosts Survival in Unstable Angina Patients

BY MITCHEL L. ZOLER

Philadelphia Bureau

MUNICH — Aspirin saves lives in patients with unstable angina, according to a chart review.

Patients who were treated with aspirin during their acute care hospitalization for unstable angina and who were prescribed aspirin at hospital discharge had a statistically significant 25% reduced risk of dying over the following 17 years, compared with patients who did not get aspirin while in the hospital or receive a prescription for aspirin at discharge, Dr. Michael E. Farkouth and his associates reported in a poster at the annual congress of the European Society of Cardiology.

The finding “confirms our current practice of routine aspirin use to reduce mortality” in patients with unstable angina, Dr. Farkouth, director of the Mount Sinai Heart Clinical Trials Unit at Mount Sinai Medical School, New York, and his associates wrote in the poster.

The study reviewed the records of all residents of Olmsted County, Minn., who presented at one of the three emergency departments in the county with a first episode of acute chest pain during January 1985–December 1992. The analysis then excluded patients who had chest pain for

reasons other than unstable angina, leaving 1,628 patients who had definite unstable angina as the cause of their chest pain and hospitalization. The mean age of the patients was 66 years, and 60% were men.

Their records also showed that 41% received aspirin during hospitalization and were also prescribed aspirin at discharge. Five percent of the patients did not get aspirin while hospitalized but did get a discharge prescription, 12% got aspirin only while hospitalized, and 42% did not get aspirin during hospitalization or at discharge.

During an average follow-up of almost 17 years, 986 of the patients died. In a multivariate analysis that adjusted for age, gender, and other baseline characteristics that affected survival, patients who received aspirin while hospitalized and who were prescribed the drug at discharge had the lowest mortality rate during follow-up.

Partial aspirin use also protected against death. Patients who received it during hospitalization but did not receive a postdischarge prescription had an adjusted, statistically significant 17% reduced risk of death, compared with patients who did not get aspirin. Patients who did not get aspirin in the hospital but did get a postdischarge prescription had an adjusted, statistically significant 23% reduced risk of dying, versus patients who did not get it. ■

## Two Simple Glucose Tests Flag Diabetes in Acute Care Setting

BY LEANNE SULLIVAN

Associate Editor

**T**he combination of fasting and admission plasma glucose tests was a useful initial screening tool to identify diabetes in patients with acute coronary syndrome, according to a study of 140 patients admitted to a coronary care unit.

It has been shown that diabetes is underdiagnosed in ACS patients and is a strong predictor of future cardiovascular mortality, Dr. Onyebuchi E. Okosieme of Cardiff (Wales) University and colleagues wrote.

The oral glucose tolerance test (OGTT) is the preferred method for detecting diabetes, but the OGTT is expensive and time consuming, and “is underused in clinical practice,” according to the authors. However, the alternatives—fasting plasma glucose (FPG) and admission plasma glucose (APG)—alone often fail to detect diabetes after a cardiac event.

In this study, each patient (average age 67 years, 79% men) underwent all three methods of testing glucose levels, and were classified as having normal glucose tolerance, impaired glucose tolerance, or diabetes.

According to the results of the OGTT,

27% of this population (38 patients) had previously undiagnosed diabetes, 39% (54 patients) had previously undetected impaired glucose tolerance, and the remainder had normal glucose tolerance. No statistically significant differences were found among the three groups in body mass index, blood pressure, total cholesterol, and triglyceride levels.

When the results of the other testing methods were compared with those of the preferred method, the FPG had 82% sensitivity and 65% specificity in detecting diabetes, whereas the APG had 67% sensitivity and 83% specificity.

When the FPG and APG tests were combined, however, the results were 90% sensitive and 57% specific. Therefore, relying on the two tests in combination would have missed only 10% of diabetic patients and would have limited the need for OGTT testing to 52% of ACS patients, Dr. Okosieme and colleagues wrote (*Diabetes Care* 2008;31:1955-9).

“The combination of FPG and APG measurements was highly sensitive in identifying patients with diabetes,” they concluded. These measurements “are readily available in the acute setting and could form a useful initial screening tool.”

No conflicts of interest were mentioned. ■