Unacceptable Delays Found With Transfer for PCI

BY BRUCE JANCIN
Denver Bureau

NEW ORLEANS — A mere 4% of U.S. acute MI patients transferred from one hospital to another for primary percutaneous intervention are treated within 90 minutes as recommended in recent guidelines, Brahmajee K. Nallamothu, M.D., reported at the annual scientific sessions of the American Heart Association.

This finding from the large National Registry of Myocardial Infarction (NRMI) database indicates an urgent need for improved process-of-care systems in order to minimize time delays for transferred MI patients, said Dr. Nallamothu of the University of Michigan, Ann Arbor.

The sense of urgency stems from the growing national and international momentum to widen the availability of primary percutaneous intervention. PCI, when performed expeditiously, yields outcomes clearly superior to thrombolytic therapy. But at present, only about 20% of U.S. acute care hospitals have the capacity to perform primary PCI.

When a patient presents to a hospital without such capacity, the only options are on-site thrombolysis or immediate transfer to another facility for the procedure. The pro-transfer argument is bolstered by several favorable European randomized controlled trials.

However, these trials were conducted in countries with better-organized care and shorter transfer distances than are the norm in the United States. As a result, total door-to-balloon times in the randomized trials—that is, the time delay between presentation at the first hospital and balloon inflation for primary PCI at the second—was only about 90 minutes. And the great majority of transferred American patients don't even come close to that speed of care.

The great bulk of the time delay occurred because of prolonged transit times.

DR. NALLAMOTHU

Dr. Nallamothu's analysis of the NRMI-3 and -4 cohorts underscores that point. Of 4,278 consecutive acute MI patients transferred for primary PCI at 419 hospitals participating in the registry, only 4.2% had a door-to-balloon time of 90 minutes or less, as recommended in the recently issued AHA/American College of Cardiology guidelines (J. Am. Coll. Cardiol. 2004;44:671-719). The median door-to-balloon time was 180 minutes.

Only 16.2% of transferred patients had a door-to-balloon time of 120 minutes or less, as recommended in earlier AHA/ACC guidelines.

The great bulk of the time delay occurred because of prolonged transit times. More than 50% of transferred patients had transfer times in excess of 120 minutes.

Such delays may influence patient outcome. "The full benefits of primary PCI may not be realized in transfer patients until times to treatment are minimized," Dr. Nallamothu said.

Beyond transit problems, several patient and hospital factors were also independently associated with prolonged total door-to-balloon times in a multivariate analysis. These included absence of chest pain, confusing ECG findings, prior coronary artery bypass surgery, arrival at the first hospital during off-hours, and presentation to a rural or nonteaching hospital.

Dr. Nallamothu said time delays would be greatly reduced if emergency departments in community hospitals that don't offer primary PCI set up efficient systems to promote early identification of patients with acute MI and promptly contact other facilities.

Another important measure will be to revise emergency medical services protocols so that in cases of suspected acute MI ambulances are encouraged proceed directly to the nearest hospital that offers primary PCI, bypassing closer hospitals that do not perform the service. Currently, most counties set up their own emergency medical services networks. In many locales, ambulance services are provided by a bewildering number of companies with minimal oversight, he added.

NRMI is an ongoing project funded by Genentech. Dr. Nallamothu's study was supported by the National Heart, Lung, and Blood Institute. ■

CPR Method Key to Patient Survival

BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — The timing of chest compressions in CPR can mean life or death to some patients in cardiac arrest, Lance B. Becker, M.D., said at the annual meeting of the American College of Emergency Physicians.

An observational study of approximately 100 patients being resuscitated in a hospital counted the number and measured the rate of chest compressions through a personal digital assistant operated by a nurse at the rescue scene. Even in this small group of patients, those who received the 80-100 chest compressions per minute during CPR recommended by the American Heart Association were significantly more likely to survive, compared with those who received lower compression rates, said Dr. Becker, director of the emergency resuscitation center and professor of emergency medicine at the University of Chicago.

The study will be published in the Feb. 1, 2005, issue of the journal Circulation, he said.

The results especially are cause for concern when combined with new concepts about three phases of cardiac resuscitation, Dr. Becker added. He and others have proposed that the first, "electrical" phase of ventricular fibrillation is well treated by defibrillation, but patients in a second, "circulatory" phase may be better treated by first receiving compression, then defibrillation. In a third, "metabolic" phase, newer therapies are needed in addition to compression and defibrillation to save more lives, he said. At present, all patients in ventricular fibrillation undergo defibrillation.

"In that second phase, compression is important, but it has to be good compression," Dr. Becker explained. "I'm worried about this. I think there are really good data that [show] we're not doing a great job on cardiac compression."

'We're not doing a great job on cardiac compression.' Physicians can begin today to save more lives by insisting that CPR be done appropriately.

A randomized, controlled trial in 2003 compared standard defibrillation with CPR first, then defibrillation in approximately 200 patients being resuscitated after cardiac arrest outside of hospitals. In a subgroup of patients reached by rescuers more than 5 minutes after cardiac arrest (who could be considered to be in that second phase of ventricular fibrillation), 20% who underwent compression plus defibrillation remained alive 1 year later, compared with 4% in the defibrillation-only group (JAMA 2003;289:1389-95). Animal studies back this concept, Dr. Becker said.

Physicians can begin today to save more lives by insisting that CPR be done appropriately, he suggested.

Dr. Becker and his associates are studying a new device to give resuscitators instant feedback on how well they're doing CPR. An accelerometer and a pressure gauge embedded into a sternal pad placed on the patient's chest are wired to a defibrillator and attached to a minicomputer. The device accurately measures the timing of compressions down to the millisecond and gives a good measurement of the depth of each compression, among other data.

In some patients, the readings show faster ventilation than compression. Hyperventilation in someone who has almost no cardiac output can increase venous return and cause what others have termed "death by ventilation," Dr. Becker noted.

The investigational device can talk to rescuers with messages such as, "Slow down your ventilation," or "Speed up your compression." It is being studied in U.S. hospitals and on patients arresting outside of hospitals in Europe to see if it improves CPR and, thus, survival.

Early results seem "very promising," Dr. Becker said. He has financial relationships with a series of companies involved in developing the device and is a paid consultant to two of them. ■

Marked Racial Disparity in Recognition, Treatment of Depression in ACS Patients

BY BRUCE JANCIN
Denver Bureau

NEW ORLEANS — Underrecognition and undertreatment of clinically significant depression among patients with acute coronary syndrome is common—and strikingly more so among black patients, Alpesh A. Amin, M.D., reported at the annual scientific sessions of the American Heart Association.

Among 1,181 patients hospitalized with acute coronary syndrome (ACS) at two major Kansas City–area medical centers, the prevalence of moderate to severe depressive symptoms, as assessed by trained evaluators using the Primary Care Evaluation of Mental Disorders Brief Patient Health Questionnaire, was 14.9% among the 80.3% of ACS patients who were white—and fully twice as great in the 16.4% of patients who were black.

Yet these significant depressive symptoms were three times as likely to go unrecognized by clinicians in black than in white patients, said Dr. Amin, a research fellow at the Saint Luke's Hospital Center for Innovation and Research and the University of Missouri, Kansas City.

Moreover, the racial disparity in treatment of depression was even more pronounced than the disparity in recognition. Only 3.6% of black patients with moderate to severe depressive symptoms were discharged on antidepressant medication, compared with 28.5% of depressed white patients.

Depressive symptoms were recognized by clinicians in just 10.3% of black patients with moderate to severe depressive symptom scores, compared with 31.2% of affected white patients.

Recognizing depression should be an important goal for any physician who provides care for patients with ACS, Dr. Amin stressed. Depressed ACS patients have been shown to have a greater risk of future cardiac events and death than nondepressed ones.

In addition, the psychologic, social, and functional impairment inflicted by depression make depressive symptoms in patients with ACS worthy of treatment, regardless of whether antidepressant therapy improves cardiovascular outcomes—an issue currently under study. ■