Obesity Paradox Seen in Non–ST-Elevation MI

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New Orleans — An obesity paradox applies in non–ST-segment-elevation MI, such that being overweight or obese is associated with a strikingly lower in-hospital mortality than being lean, R. Scott Wright, M.D., said at the annual scientific sessions of the American Heart Association.

The explanation for this phenomenon remains unclear. So do its long-term implications. "I would caution that the obesity paradox is in fact probably not benign, that it's perhaps a predictor of patients who'll present again later and may in fact have increased long-term mortality risk rather than simply lower short-term risks," said Dr. Wright of the Mayo Clinic, Rochester, Minn.

He decided to take a more comprehensive look at the obesity paradox, this time in patients with NSTEMI, a population not previously examined. He did so using the National Registry of Myocardial Infarction-4 (NRMI-4) database, the largest, most comprehensive registry of MI patients in the United States. He reported on 280,341 patients with NSTEMI, of whom 44.6% were obese.

In-hospital mortality in the obese NSTEMI patients was half that in the 25.8% of the NRMI-4 cohort who were lean, while overweight patients had an intermediate mortality rate. Obese patients with NSTEMI also had significantly lower rates of new-onset atrial fibrillation and heart failure, although their in-hospital recurrent MI rate didn't differ from that of lean patients.

Dr. Wright offered several possible explanations. Perhaps the most compelling was patient age. Advanced age is one of the strongest predictors of poor outcome in acute MI. At a mean age of 65.5 years, obese NSTEMI patients were a full decade younger on average than lean ones.

Also, obese patients tended to present with NSTEMIs having lower-risk features, as reflected in their TIMI risk scores. The prevalence of a high TIMI risk score was only 28.5% in obese patients, compared with 35.4% in overweight and 51.4% in lean patients. Moreover, obese patients in this large registry were more likely than overweight or lean patients to receive appropriate aggressive therapies for their NSTEMI. They had higher rates of utilization of ACE inhibitors, η-blockers, glycoprotein IIb/IIIa inhibitors, and other drugs.

The coronary revascularization rate was 42.4% in obese patients, 39.7% in overweight ones, and only 24.2% in lean patients, which could be yet another key factor in the reduced short-term mortality in the obese, Dr. Wright observed. ■

Rheumatoid Arthritis Rivals Diabetes As Predictor of Poor MI Outcomes

Munich — The mortality risk during a hospital stay for acute MI in patients with rheumatoid arthritis is as high as in those with diabetes, Gurkipal Singh, M.D., reported at the annual congress of the European Society of Cardiology.

The high-risk nature of acute coronary syndrome in diabetic patients has come to be broadly appreciated by the medical community during the last decade, but the evidence suggests that the same isn't true regarding coronary events in rheumatoid arthritis patients. This needs to change, said Dr. Singh of Stanford (Calif.) University.

"Patients with rheumatoid arthritis presenting with chest pain and probable MI should be stratified as high-risk, like diabetic patients, triaged accordingly, and managed aggressively," the physician said.

Dr. Singh reviewed trends in acute MI survival among patients with rheumatoid arthritis as compared with diabetes in the National Inpatient Sample for 1991-2001.The National Inpatient Sample is a stratified random sample of U.S. hospital admissions. It is the only large American database on inpatient care, regardless of insurance coverage.

In 1991, 4% of all hospital admissions in patients with diabetes mellitus had a primary admitting diagnosis of acute MI, as was the case for 1.5% of all admissions involving patients with rheumatoid arthritis.

In-hospital mortality occurred in 11% of diabetic MI patients in 1991. The case fatality rate dropped to 7.7% by 2001, presumably because of new major therapeutic innovations—and a willingness to employ them aggressively in diabetic patients as the heavy toll cardiovascular disease takes in this population became better understood.

In contrast, in-hospital mortality after acute MI in rheumatoid arthritis patients during 1991-2001 slipped downward by a mere 0.03% per year. In 1991, rheumatoid arthritis patients with acute MI were 30% less likely than diabetic patients to die in-hospital, but by 2001 this survival advantage had disappeared: Their in-hospital mortality was 7.6%, compared with 7.7% in diabetic patients with MI.

The explanation for the relatively high acute MI fatality rate in rheumatoid arthritis patients isn't as clear as in diabetes. In 2001, rheumatoid arthritis patients with acute MI were older and much more likely to be female but less likely to have hypertension than diabetic patients hospitalized for an acute MI.

It is increasingly clear, however, that rheumatoid arthritis is a systemic inflammatory disease. The inflammatory process might encourage more extensive atheromatous plaque formation and hence larger infarct size than in nonarthritic individuals who develop acute MI, he said. ■

Breathing Check Improves the Detection of Cardiac Arrest

New Orleans — Tweaking emergency dispatcher assessment protocols to incorporate a few simple questions regarding agonal breathing markedly increases the rate of cardiac arrest detection over the phone, Ahamed H. Idris, M.D., reported at the annual scientific sessions of the American Heart Association.

The net result is a greater than 30% increased likelihood that CPR will be started by bystanders as a result of the 911 call, well before emergency medical services (EMS) personnel can arrive on the scene.

And that, in turn, substantially increases chances for patient survival, according to Dr. Idris, professor of emergency medicine at the University of Texas, Dallas.

Up to 40% of out-of-hospital arrest victims don't get CPR because agonal breathing is misinterpreted.

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In a separate presentation, investigators described another novel approach to improving the rate of prompt CPR by lay rescuers in out-of-hospital cardiac arrest, this time through the use of a new, brief, self-guided CPR video instruction method for the general public that takes only one-eighth the time of the traditional 4-hour CPR group class.

Dr. Idris noted that studies from Sweden, Seattle, and Dallas have independently shown that CPR is withheld from up to 40% of people with out-of-hospital cardiac arrest because potential rescuers or 911 dispatchers misinterpret agonal breathing, thinking it an indication that the individual is not actually in cardiac arrest.

In fact, agonal breathing—a distinctively slow breathing pattern in which the collapsed person appears to be gasping for air—is an extremely common occurrence shortly after the respiratory center in the brainstem becomes deprived of oxygen-rich blood.

"That's the time when people are most likely to actually be saved if they receive intervention," according to Dr. Idris, a member of the AHA Emergency Cardiovascular Care Committee.

He and his coworkers in an AHA-sponsored trial developed a series of three simple questions designed to be incorporated into emergency dispatcher protocols.

This is intended to enable individual dispatchers to better identify cardiac arrest through the improved detection of agonal breathing over the phone. (See box.)

The investigators studied all 962 cases of dispatcher-assisted out-of-hospital cardiac arrest in the Dallas area during the 8 months before and 4 months after implementation of the new dispatcher protocol that includes questioning about agonal breathing.

They found that, prior to the change, 28% of all cardiac arrests were missed, as confirmed upon subsequent arrival of EMS personnel, compared with 18.8% after the protocol change.

That's a 32% reduction in missed cases—and in the months following completion of the formal study, as emergency dispatchers have grown more experienced in identifying agonal breathing, the percentage of missed cardiac arrests has dropped even further, Dr. Idris continued.

In a separate presentation, Bonnie C. Lynch, Ph.D., pointed out that middle-aged adults are the individuals who are most likely to witness a cardiac arrest, and yet they are seriously underrepresented as participants in the standard 4-hour CPR Heartsaver training classes, which have tended to attract a younger population.

The AHA has set an ambitious goal of training 20 million people per year and is now in the process of training 9 million. In order to train more members of the general public in CPR, the AHA commissioned the development of a 30-minute CPR self-training kit.

The kit, designed for home or work settings, includes a 20-minute video, an inflatable mannequin, and an electronic coaching device that provides feedback regarding the trainee's chest compression technique.

The short self-training kit was tested in a randomized controlled trial in 285 40- to 70-year-olds in the Portland, Ore., area. Three-fifths used the kit, one-fifth took the standard 4-hour CPR training course, and the remainder received no training.

Evaluators blinded to the study tested CPR skills immediately after the training sessions and demonstrated that the kit users were as skilled as those participants who had completed the standard Heartsaver class.

When skills retention was tested 2 months later, the two groups remained closely comparable, said Dr. Lynch of RMC Research Corp., Portland.

The self-training kit is scheduled to be commercially available by midyear. ■

Cardiac Arrest Questionnaire

► Is the person awake and conscious?
► Is the person breathing normally? Count the breaths and describe what they sound like. (An interval of 10 or more seconds between breaths is a marker for agonal breathing and an indication to start CPR.)
► Is the person moving?