Use of Morphine for MI Questioned

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NEW ORLEANS — Use of intravenous morphine in patients with acute coronary syndromes is a long-standing common practice—and the focus of new safety questions.

Data from the CRUSADE national quality-improvement registry indicate nearly 30% of patients hospitalized with non–ST segment elevation acute coronary syndrome (NSTE ACS) receive intravenous morphine within the first 24 hours of presentation.

Patients who received morphine had increased rates of mortality and other in-hospital adverse outcomes than did those who did not, even after controlling for differences in patient, hospital, and physician characteristics, Trip J. Meine, M.D., reported at the annual scientific sessions of the American Heart Association.

Morphine has been used for management of refractory chest pain in patients with MI since at least 1912. The practice has never been the subject of a randomized trial, nor even—until CRUSADE—a large observational study. Yet it enjoys a class I-C recommendation in the AHA/American College of Cardiology guidelines, noted Dr. Meine of the Duke Clinical Research Institute, Durham, N.C.

He reported that of 57,039 patients who presented with NSTE ACS in 2001-2003 to more than 400 U.S. hospitals participating in CRUSADE (Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes With Early Implementation of the ACC/AHA Guidelines), 30% received intravenous morphine within the first 24 hours.

"That was the first surprise. It's a really common practice," he observed.

Morphine-treated patients presented with more high-risk features, such as ST-segment depression and positive biomarkers, than patients who didn't get morphine.

Perhaps for this reason, morphine recipients also were more likely to get evidence-based medications in accord with ACC/AHA guidelines, including -blockers, aspirin, and glycoprotein IIb/IIIa inhibitors. They also got speedier care and were more likely to undergo diagnostic cardiac catheterization and coronary revascularization, all of which indicates morphine use is not a marker for overall suboptimal care.

Morphine-treated patients had worse unadjusted in-hospital outcomes. Moreover, after extensive statistical adjustment for patient risk level, use of evidence-based therapies, and hospital and physician characteristics, they still had a 48% increased relative risk of death and a 34% increased risk of reinfarction, compared with patients who didn't get morphine.

Could morphine merely be a marker for more refractory ongoing chest pain and a particularly severe acute presentation? To examine this possibility, investigators looked at the more than 13,000 patients who got another agent widely prescribed for chest pain—intravenous nitroglycerin—but not morphine.

Like the morphine-treated patients, those on intravenous nitroglycerin presented with more high-risk characteristics and were more likely to receive evidence-based therapies than were patients on neither therapy. Yet their in-hospital combined death or reinfarction rate was only 6.5%, compared with 9.6% in the morphine group. After controlling for patient risk level and other relevant factors, morphine-treated patients still had a 40% greater risk of the combined end point than did those given intravenous nitroglycerin.

Clinical outcomes in the subset of CRUSADE participants who got both agents were worse than in those who received intravenous nitroglycerin alone.

It's worth noting, Dr. Meine continued, that nitroglycerin reduces ventricular wall tension and myocardial oxygen demand, both potentially beneficial effects on ischemic myocardium. In contrast, morphine has many side effects that reduce myocardial oxygen delivery and are thus potentially harmful to ischemic myocardium, including respiratory depression, bradycardia, and hypotension.

"I think it's important to bring up the question of whether morphine itself is a deleterious medication," Dr. Meine said. "Clearly, a randomized controlled trial is warranted. …My gut feeling is morphine is probably often reached for much earlier than it needs to be, before trying maximum-dose IV nitroglycerin." ■

Women Show More Post-MI Depression

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% among women and 16% in men over age 60, said 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 supports community-based studies showing that the prevalence of depression is higher in young women than in the general population, she added. ■

Why Renal Failure Patients With MI Have 'Dismal' Outcomes

NEW ORLEANS — Mortality is extraordinarily high in the year after acute MI in patients with renal failure—and the explanation may lie largely in their strikingly different clinical characteristics as compared with the general MI population.

In this regard, dialysis patients and those with non–dialysis-dependent chronic renal insufficiency look much more alike as a group, and distinctly different from acute MI patients without a history of renal impairment, Charles A. Herzog, M.D., said at the annual scientific sessions of the American Heart Association.

Dialysis patients have a "dismal" 60% 1-year mortality following acute MI, noted Dr. Herzog, a cardiologist with the U.S. Renal Data System and Minneapolis Medical Foundation.

In an effort to understand why patients with renal failure fare so poorly after an MI, he and his coinvestigators constructed a unique database by cross matching the records of the U.S. Renal Data System and the National Registry of Myocardial Infarction-3, a large Genentech-sponsored registry of MI patients. This yielded a study population consisting of 2,720 renal dialysis patients with MI; 35,950 MI patients with non–dialysis-dependent renal insufficiency; and 384,415 MI patients with no history of chronic renal disease. None of the study participants was transferred for MI care.

Many statistically and clinically significant differences were apparent between the renal patients and those in the general population. (See box.)

Among the differences that may have had the greatest bearing on the poor long-term prognosis of patients with renal disease were their lesser likelihood of presenting with chest pain, in Killip class I, or with ST-elevation MI, as well as the lower diagnostic suspicion of MI upon presentation. By ECG criteria, a much lower percentage of renal failure patients were eligible for any sort of reperfusion therapy, Dr. Herzog said.

There was no major difference between the groups in terms of prehospital delay, which averaged about 5.5 hours from symptom onset to hospital presentation, so an educational campaign aimed at increasing renal patients' awareness of MI signs and symptoms isn't likely to yield major improvements in long-term outcome, Dr. Herzog said.

In response to audience expressions of surprise that the patients with non–dialysis-dependent renal insufficiency fared as poorly post MI as patients requiring dialysis, Dr. Herzog replied that this appeared to be largely an age-driven phenomenon.

Advanced age has long been recognized as an important predictor of worse outcome after an MI, he noted, and in this study the non–dialysis-dependent renal patients were significantly older than the other two groups, with a mean age of 75 years, compared with 68 years in the dialysis patients and 69 years in MI patients without renal disease. ■

Key Differences Between Renal and Nonrenal Patients With MI

History	Dialysis patients (n = 2,720)	Patients with non–dialysis-dependent renal insufficiency (n = 35,950)	Nonrenal patients (n = 384,415)
Diabetes	58%	52%	27%
Prior MI	26%	37%	24%
Heart failure	31%	45%	15%
Admission Characteristics			
ACS suspected at presentation*	21%	25%	44%
Chest pain	43%	44%	68%
Killip class I	58%	49%	76%
ST-elevation MI	25%	26%	40%
In-Hospital Characteristics			
Cardiac arrest	12.0%	8.7%	5.5%
Mortality	21.3%	21.9%	10.7%

*ACS is acute coronary syndrome.
Source: Dr. Herzog