Clinical Differences May Explain Higher Mortality in Renal Patients After MI

BY BRUCE JANCIN
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NEW ORLEANS — Mortality is extraordinarily high in the year after acute myocardial infarction 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.

By ECG criteria, a much lower percentage of renal failure patients were eligible for any sort of reperfusion therapy.

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 continued.

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 is not 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

Right Ventricular Dysfunction Seen as Risk

BY MITCHEL L. ZOLER
Philadelphia Bureau

NEW ORLEANS — Patients with severe right ventricular dysfunction following a myocardial infarction had a substantially increased risk of adverse cardiovascular events in an analysis of 522 patients.

"Reduced right ventricular systolic function should be considered a major risk factor" for death, heart failure, stroke, and sudden death following a myocardial infarction, Nagesh S. Anavekar, M.D., said while presenting a poster at the annual scientific sessions of the American Heart Association.

His study used data collected in the Valsartan in Acute Myocardial Infarction Trial (VALIANT), a study that randomized nearly 10,000 acute myocardial infarction patients to treatment with either valsartan or captopril. The study showed that these two drugs had similar efficacy for reducing cardiac events. The new analysis focused on a subset of 610 patients who underwent two-dimensional echocardiography an average of 5 days following their MIs.

For 522 of these patients, the images collected during echo were good enough to allow Dr. Anavekar and his associates to quantify right ventricular function using the apical, four-chamber view.

They calculated the right ventricular fractional area change for each of these patients based on the percent change in right ventricular cavity area from end diastole to end systole. The mean right ventricular fractional area change for all 522 patients was 42%.

The incidence of all-cause death, cardiovascular death, repeat MI, heart failure, stroke, and sudden death was tallied during an average follow-up of about 2 years.

There was a strong, inverse correlation between the rate of all of these events except repeat MI and the change in right ventricular fractional area.

In an analysis that controlled for 26 potential confounders, including age, left ventricular ejection fraction, Killip class, and treatment, every 5% drop in right ventricular fractional area change at baseline was associated with a 70% increase in the combined rate of fatal and nonfatal cardiovascular events, said Dr. Anavekar of the cardiovascular division of Brigham and Women's Hospital, Boston. The association was statistically significant. ■

Post-MI Mitral Regurgitation Is Mortality Risk

BY MITCHEL L. ZOLER
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MUNICH — Patients who develop moderate to severe mitral regurgitation following a myocardial infarction have a substantially increased risk of death, compared with those who don't, based on a population-based study in Olmsted County, Minnesota.

The review also showed that about 11% of myocardial infarction patients develop moderate to severe mitral regurgitation (MR) following an MI. These findings suggest that patients who have had an MI should be systematically screened for MR by echocardiography within a few days of their index event, Francesca Bursi, M.D., said at the annual congress of the European Society of Cardiology.

It's possible that patients who are identified this way as having moderate to severe MR may be candidates for mitral valve repair or replacement, but this strategy needs to be tested in a study, according to Dr. Bursi, a cardiologist at the Mayo Clinic in Rochester, Minn.

In an analysis adjusted for age, gender, and ejection fraction, patients with moderate to severe MR were 45% more likely to die during 6 years of follow-up.

The study reviewed the records of all patients admitted to the Mayo Clinic during 1988-1998 with a first-episode MI, and who underwent echocardiography during the first 30 days following their event.

Of the 1,331 patients who had a myocardial infarction in this period, 773 also underwent echocardiography.

The ultrasound examination identified mild MR in 297 patients (38.4%), moderate to severe MR in 90 patients (11.6%), and no MR in 386 patients (50%).

The patients with moderate to severe MR were significantly older and were more often women compared with those with no MR. In addition, those with the more severe dysfunction had a substantially higher prevalence of hypertension and diabetes and worse left ventricular function.

During an average 6.1 years of follow-up, the mortality rate was 28% among the patients with no MR, 38% among those with mild MR, and 60% among those with moderate to severe MR. On an unadjusted basis, patients with moderate to severe MR were 2.6-fold more likely to die than patients with no MR.

When the analysis adjusted for differences in age, gender, and ejection fraction, patients with moderate to severe MR were 45% more likely to die during 6 years of follow-up than those with no MR. This relationship was not affected by further adjustment for comorbidities, such as hypertension and diabetes.

Most of the deaths in the patients with moderate to severe MR were due to heart failure, Dr. Bursi said. ■