

# Studies Show Substantial Declines in Incidence, Fatality of Second MIs

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STOCKHOLM — The marked decline in the incidence of first MI and the improved rate of survival after its occurrence constitute one of the great medical success stories in recent decades.

But what about second MIs? Are they also decreasing in incidence and lethality?

The answer is a resounding yes, based on the findings of two studies presented at the annual congress of the European Society of Cardiology. The studies captured highly favorable trends in first and second MIs in Scotland and Denmark, two places with comprehensive national medical record-keeping.

Niamh Murphy, M.D., used the Scottish Linked Record Database to analyze all 110,226 hospitalizations for a first MI and 9,664 admissions for a second MI in Scotland during 1990-2000.

She said she found that the hospitalization rate for a first MI declined by 29% over the decade. The reduction in the hospitalization rate for a second MI was even more impressive—it was down by 59%, which is testimony to the great strides that were made in secondary prevention during that period.

The median time between a first and second MI was 2.3 years in men and 4.8 years in women. Overall survival after a first MI was 8.8 years in men and 4.3 years in women. Survival after a second MI was considerably shorter—an average of 3.6 years in men and 1.8 years in women, said Dr. Murphy of the Western Infirmary, Glasgow.

During the same period, overall mortality after a first MI was 20.1% at 1 month, 28.4% at 1 year, and 44.7% at 5 years. Mortality was substantially

worse after a second MI: 24.5% at 1 month, 38.3% at 1 year, and 60.2% at 5 years.

Advanced age was a powerful risk factor for mortality. For example, men older than 84 years at their first MI were more than 15-fold more likely to die within 30 days than were those with a first MI before the age of 55 years.

Age also affected mortality after a second MI, but to a lesser extent. Af-



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DR. MURPHY

ter adjusting for age, gender, comorbid illnesses, and other potential confounders, the 30-day case fatality rate after a first MI fell by 38% in men and by 24% in women. The decline in 30-day mortality after a second MI was smaller and not statistically significant.

However, the decline in adjusted 5-year mortality after a second MI was more robust: 29% in men and 17% in women.

During the same period, adjusted 5-year mortality after a first MI fell by 27% in men and 23% in women, Dr. Murphy continued.

However, despite the dramatic decline in recent years in the rate of second MIs and the substantial drop in the associated fatality rate, the prognosis after a second MI remains considerably worse than it does after the first.

“This last finding underscores the importance of using all available evidence-based therapies to prevent recurrent events in patients who have

experienced a first MI,” Dr. Murphy stressed.

In a separate presentation, Pernille Buch, M.D., reported on all 167,260 patients diagnosed with a first MI in Denmark during 1985-2002. One-year mortality after hospitalization for a first MI declined steadily throughout the study period, from 39% in the first 5 years of the study, during 1985-1989, to 25% in during 2000-2002, the last three years of the study. (The researchers used the 3-year period because the change in 2003 of the definition of acute MI disrupted longitudinal epidemiologic studies.)

There was an even more pronounced reduction in mortality among the 5,363 patients who experienced recurrent MI within 30 days of their first MI. During the 1985-1989 period, the 1-year mortality following such an event was 49%; by the 2000-2002 period, it had dropped to 18%, according to Dr. Buch of Bispebjerg University Hospital, Copenhagen.

Most of the improved prognosis after recurrent MI during the 17-year study period came from a marked decline in mortality during the first week after the event.

During 1985-1989, patients who had a recurrent MI within 30 days of a first MI were 14-fold more likely to die within the next 7 days, compared with patients who didn't have a second MI. By the 2000-2002 period, they were only 5-fold more likely to die within a week compared, with those without a recurrent MI.

Likewise, those patients with recurrent MI during 1985-1989 were five fold more likely to die during days 8-60 than were those who did not have a second MI. However, by 2000-2002, they had only a 1.8-fold increased risk of death during the same time period. ■

# MI Mortality Higher If Patient Anemic at Hospital Admission

SAN DIEGO — Anemia is an independent risk factor for long-term mortality after myocardial infarction in both diabetic and nondiabetic patients, according to the findings in a large Canadian study.

Researchers at Queen Elizabeth II Health Sciences Centre, Dalhousie University, in Halifax, N.S., studied outcomes in 7,466 patients who were admitted with acute MI.

Of these, 1,431 had anemia but no diabetes, 1,646 had diabetes but no anemia, and 964 had diabetes and anemia. The remaining 3,425 patients had neither diabetes nor anemia.

The patients fared worse if they had both anemia and diabetes, with greater than 25% mortality at 1 month post admission, and greater than 35% mortality within 30 months, S. Ali Imran, M.B., of the division of endocrinology at the university, reported in a poster displayed at the annual meeting of the Endocrine Society.

Diabetes was a strong independent risk factor for both 30-day and long-term (31 days to 30 months) mortality.

Anemia, defined as a hemoglobin level of less than 120 g/L in females and 140 g/L in males, did not independently predict short-term mortality, but that may have been because mild degrees of anemia were included.

However, “any degree of anemia has an adverse effect on long-term mortality post myocardial infarction,” with each lower quintile of hemoglobin at the time of an MI admission associated with an increased risk of death, noted Dr. Imran.

Long-term mortality in patients with anemia approached 30%, compared with about 13% in those patients who did not have anemia or diabetes when they were admitted.

The authors pointed out that patients with anemia tended to be older and male and had worse renal function than other MI patients.

“Since anemia is a marker of an underlying disorder, the etiology of the anemia may explain an increased risk of mortality,” they wrote.

The researchers found that the primary cause of death for all patients, including the group with anemia, was cardiovascular.

“Further research examining the potential of correcting anemia is needed in the hopes of reducing long-term mortality,” they concluded.

—Betsy Bates

# Large Study Shows High Incidence of Unrecognized MI in Older Patients

STOCKHOLM — A high proportion of myocardial infarctions occurring in patients after age 55 go clinically unrecognized, Anneke de Torbal, M.D., reported at the annual congress of the European Society of Cardiology.

This observation from the prospective, population-based Rotterdam Study raises the possibility that periodic screening ECGs ought to be routine in older adults. It would result in identification of patients with previously unrecognized MI so they could have the benefit of placement on an intensive secondary prevention regimen, said Dr. de Torbal of Erasmus Medical Center, Rotterdam, the Netherlands.

The Rotterdam Study includes 4,187 men

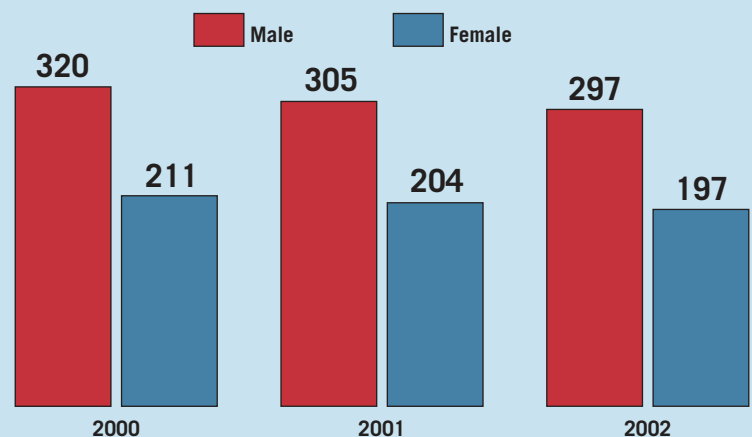
and women above age 55 free of evidence of prevalent MI by 12-lead ECG at baseline and who had a follow-up ECG a mean of 6.4 years later. During the follow-up period, 141 participants experienced a clinically recognized MI. This translated into an incidence of 5.0 cases/1,000 patient-years. The rate in men—8.4 cases/1,000 patient-years—was significantly greater than the 3.1/1,000 patient-years in women.

The incidence of clinically unrecognized MI picked up only by the screening ECGs performed as part of the Rotterdam Study protocol was 4.2 cases/1,000 patient-years in men and 3.6/1,000 patient-years in women.

—Bruce Jancin

## DATA WATCH

### Heart Disease Death Rates on the Decline



Note: Based on deaths per 100,000 people.  
Source: Centers for Disease Control and Prevention