

Women and men have similar outcomes after myocardial infarction

Vaccarino V, Krumholz HM, Berkman LF, Horwitz RJ. Sex differences in mortality after myocardial infarction: is there evidence for an increased risk for women? *Circulation*. 1995 Mar 15;91:1861-71.

Objective

To study the relation between survival after myocardial infarction (MI) and sex.

Data Sources

English language studies were identified through MEDLINE (1966 to June 1994) using the terms myocardial infarction, mortality, complications, and sex factors. Bibliographies of retrieved articles were also checked.

Study Selection

Studies were selected if they reported mortality rates by sex, sex-related relative risk for mortality, or significance tests for mortality differences between men and women. Studies were excluded if only prevalent cases of MI

were included, if numbers were very small, if MI was not confirmed by enzymes or electrocardiogram, or if adjustment was not made for age.

Data Extraction

Data extracted were early mortality (in-hospital or during the first 4 to 6 weeks after MI); late mortality; and crude and age-adjusted mortality rates in men and women, crude and age-adjusted relative risk for death in men or women, or both.

Main Results

Data were not pooled because of heterogeneity. 27 studies were included. 13 trials studied consecutive hospitalized patients, 9 were population-based, 4 were clinical trials, and 1 studied health insurance data. 19 339 women and 52 101 men were included. Across studies, women who had had an MI were older than men; had a higher prevalence of hypertension, diabetes, and congestive heart failure; and had more mechanical complications during hospitalization. Men had a higher rate of cigarette smoking, a higher incidence

of previous MI, and more arrhythmic complications. Of 17 studies evaluating early mortality, most showed greater mortality in women, but age-adjustment in 11 studies reduced the sex difference to < 20%. Excess mortality in women was also reduced in 6 of the 8 studies that adjusted for risk factors other than age. Of 7 studies reporting mortality at > 1 year, 6 (5 significant, 1 trend) found that after adjusting for age and risk factors, women had a lower risk for mortality.

Conclusions

After adjustment for age and risk factors, women have a modest increased short-term survival disadvantage compared with men after myocardial infarction. In the longer term, women have a survival advantage at all ages compared with men.

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Commentary (Continued from page 22)

The GUSTO findings support the conclusions of Vaccarino and colleagues, who systematically reviewed the literature on sex differences in prognosis after MI. They found insufficient similarities in study designs and data to allow a standard meta-analysis. Therefore, their review uses vote-counting; studies are weighted equally regardless of sample size or the magnitude of sex differences found. Vaccarino and colleagues do, however, convincingly show that the adverse short-term prognosis for women after MI occurs largely because women are older, on average, when they have an MI. Our recent analysis of population-wide data for Ontario provides corroborating evidence. In 1991, the crude (vs. age- and sex-ad-

justed) in-hospital death rates for men and women with MI were 14.4% (15.8%) and 21.9% (17.5%), respectively. The 34% relative difference decreased to 10% with age adjustment (2).

Vaccarino and colleagues also highlight the favorable long-term prognosis for women. Beyond 1 year from the index MI, women have a lower age-adjusted mortality than men because their usual survival advantage over same-aged men re-emerges.

Taken together, these studies offer reassurance that little of the sex difference in mortality after MI is attributable to sex differences in MI treatment that have been reported in several countries. More research is needed to understand better whether (and why) women have even a

small short-term mortality disadvantage after MI, and to determine whether sex differences in treatment have adverse effects on quality of life for women.

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