Decreasing Coronary Heart Disease Mortality Over Two Decades: Prevention or Postponement? (A New Jersey Statewide Study)

William J. Kostis, Yu-Hsuan Shao, Abel E. Moreyra, Alan C. Wilson, John B. Kostis, For the Myocardial Infarction Data Acquisition System (MIDAS) Study Group, UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ

Background: Over the last two decades, there has been a marked decrease in age-adjusted coronary heart disease (CHD) mortality. However, it is unclear whether this decrease is due to prevention or postponement of CHD deaths.

Methods: We studied admissions for acute myocardial infarction (N=344,659) and total CHD deaths (N=355,572) in New Jersey over the 19-year period 1986-2004 and examined differences in trends of crude and age-adjusted rates.

Results: In the years under consideration, there was a decrease in age-adjusted CHD mortality per 100,000 (640 to 339 [47%] in men and 537 to 309 [42%] in women, in the time intervals 1986-89 and 2001-04, respectively). The decrease in the crude CHD death rate was less pronounced (640 to 360 [44%] in men and 537 to 349 [35%] in women). The difference between the crude and age-adjusted CHD death rates increased progressively during the years studied. Of the 301 per 100,000 decrease in age-adjusted mortality in men, 280 deaths per 100,000 annually appear to have been truly prevented and 21 (7%) postponed to an older age during the 19-year period studied. In women, of the 228 per 100,000 decrease in age-adjusted mortality, 280 deaths per 100,000 annually appear to have been truly prevented and 40 (17%) postponed to an older age. Contrary to fatal CHD, both the age-adjusted and the crude rates of hospital admission for nonfatal acute myocardial infarction did not decline appreciably in the 19-year period studied. The age-adjusted rate declined slightly from 853 to 844 per 100,000 (1% decrease) among men but increased from 488 to 559 (14% increase) among women. Median age, and the rate of comorbidities such as diabetes, hypertension, and renal disease also increased.

Conclusions: 1. The marked decrease in age-adjusted CHD mortality observed in the last 20 years is primarily due to true prevention while a significant minority is due postponement to an older age, especially among women (17%). 2. The increase in admissions for nonfatal acute myocardial infarction may be due to changes in case definition, increased co-morbidity, and decreasing in-hospital mortality.