Geographical Variations in Post Myocardial Infarction Mortality and Their Impact on Risk Selection

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ABSTRACT

Objectives.—The objective is to assess the impact of geographical variations in mortality on risk selection in patients after acute myocardial infarction.

Method.—Mortality analysis is used with an actuarial methodology applied to follow-up studies based on data from randomized clinical trial and observational cohort studies of acute myocardial infarction patients from different geographic areas. Observed mortality was calculated as geometric average annual rate ($\bar{q}$) and compared to the expected geometric average annual mortality ($\bar{q}'$) mortality calculated from different life tables. This comparison was expressed as mortality ratios (MR). Values of $\bar{q}$ and MR were averaged within each country grouping. Variance, standard deviation, and variation coefficient (CV) were calculated.

Results.—Geometric average annual mortality rates varied by country. The lowest rate (2.7%) was observed in Japan, and the highest rates (7.5%) were seen in studies from the United Kingdom and Northern Europe (Denmark, Sweden, Finland). The average annual mortality rate was 4.9%. Mortality ratios averaged within countries vary from 182% to 212%, with an overall average value of 198%. Coefficient of variation (CV) was 36% for geometric average annual mortality rates and 6% for mortality ratios.

Conclusion.—Although annual mortality rates from all causes vary greatly between countries, mortality ratios do not vary and remain relatively constant. This highlights the interest of risk assessment using mortality analysis methodology, which makes the geographic variation in post-myocardial infarction mortality disappear.

Keywords: Myocardial infarction, long-term prognosis, mortality ratios.