Mortality from coronary heart disease—trends for the Republic of Ireland

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Summary

A study of certified mortality between 1968 and 1981 indicates that mortality from all causes commenced to decline from the mid 1970s in the Republic of Ireland. This trend was apparent for both sexes and for all ages except for men aged 55-64 years. A similar trend of lesser magnitude is suggested for coronary heart disease mortality in males, but not in females.

The decrease in the percentage of male cigarette smokers in the population which is also reflected in a marked decline of smoking among male coronary patients, may be related to the trends in mortality.

Introduction

As in other Western countries, the certified mortality from coronary heart disease (CHD) has shown a continuous increase in the Republic of Ireland during the second half of this century. While many factors may have contributed to this increase, including reduction in deaths from infectious diseases, and changes in diagnostic standards and in death certification, it is likely that part of the increase in CHD mortality can be attributed to an increased incidence of the disease (Hickey and Mulcahy, 1970). Up to 1971, the total mortality continued to increase, particularly in men aged 40-55 years (Kevany and McCormick, 1975). The present report examines trends in mortality from CHD between 1968 and 1981.

Materials and methods

Since the eighth revision of the International Classification of Causes of Death in 1968 there has been no change up to 1981 in the categories 410-414

which include deaths from CHD. Annual rates for total mortality and age and sex specific mortality for CHD were calculated for the 14-year period 1968-1981 inclusive. Because clinical manifestations of CHD are more clear-cut in young and middle-aged people, the 35-44, 45-54 and 55-64 age year-groups were selected for the purpose of this study. Only age-specific rates were available between 1979 and 1981.

Results

Annual mortality rates from all causes in the Republic of Ireland, between 1968 and 1981 are presented for males and females in the age groups 35-44, 45-54, 55-64 years and all ages (Figs. 1-4). In all age groups and in both sexes there is a trend of decline in mortality which is apparent from the early 1970s.

The corresponding rates for CHD mortality are shown in Figs. 5-8. Between 1968 and 1974 there is a gradual increase in mortality among males in the 35-64 years age group. After 1974 males show a trend of declining mortality. The extent of this decline in the 35-44 years age group from 1973-1978 is 18.3%. Over the same period, the 45-54 years age group showed a decline in mortality of 10.3%. Among females there is no significant trend apparent in the 35-44 and 45-54 age groups.

In the age group 55-64 years males show an increasing mortality from CHD during the period 1968-1978 of 23.4% with no change in female mortality in this age group. Fig. 8 shows that, at all ages and in both sexes, CHD mortality levels out during the period 1971-1978 followed by a possible decline up to 1981. This may in part reflect the changed age distribution of the population. Overall

FIG. 1. Total death rates, ages 35-44 years.

FIG. 2. Total death rates, ages 45-54 years.

for males and females combined there is little change in CHD mortality in the 35-64 years age group.

Because of the decline in total mortality and a variable trend in CHD mortality for different ages and for both sexes, the proportion of deaths attributable to CHD shows an increase in *all* ages over the period of study. In males, the CHD mortality increased from 24.5% in 1968 to approximately 29.0% in 1981 and in females from 18.5% to 21.0% (Fig. 9).

Discussion

A declining trend in CHD mortality has taken place in the United States since 1968 (Havlik and Feinleib, 1979; Feinleib, 1979) and subsequently in other countries (Salonen, Puska and Mustaniemi, 1980; Heller, Hayward and Hobbs, 1983). In the Republic of Ireland the increase in CHD mortality for men and women of all ages appears to have peaked in 1972 and remained constant until 1975 for

FIG. 3. Total death rates, ages 55-64 years.

FIG. 4. Total death rates, all ages.

men and until 1978 for women. Since then a decline in mortality is apparent. Among men the decline is most marked in the 35-44 years age group and less apparent in the 45-54 years age group. The 55-64 years age group continues to show an increase in mortality. For men and women combined a declining trend may be occurring between 1978 and 1981. Although the magnitude of these trends is not large it may be important in the light of the increasing mortality up to the early 1970s.

The fall in mortality in the United States has led to considerable speculation about possible contributory factors, including improved early mortality in coronary care units, the widespread use of coronary artery bypass surgery, increased public awareness of coronary risk factors and increased detection and better management of hypertension were all advocated as possible reasons for the decline (Havlik and Feinleib, 1979). It is extremely difficult to quantify the possible contribution of each of these and of other factors; see

FIG. 5. Coronary heart disease death rates, ages 35-44 years.

FIG. 6. Coronary heart disease death rates, ages 45-54 years.

also, the lack of morbidity data adds to the difficulty in our understanding of underlying causes for these trends. No morbidity data are available in Ireland. The coronary care unit mortality at St Vincent's Hospital, Dublin, has remained constant at approximately 12% since 1973. Coronary artery bypass procedures cannot have significantly influenced mortality, the number of operations performed in the entire country being 220 in 1981. There remains the possibility that changes in the mean levels of coronary risk factors may have occurred and that

reduction in one or more risk factors may be contributing to mortality trends.

Cigarette smoking strongly predisposes to CHD mortality. Between 1972/1973 and 1978/1979 the percentage of cigarette smokers in both sexes decreased from 43% to 36%. The decrease was more marked in men (9%) than in women (6%) and was greatest in the age groups 16-24 and 45-54 years (Joint National Media Research Survey). Trends in cigarette smoking among men with acute CHD also show a continuous reduction in the proportion of

FIG. 7. Coronary heart disease death rates, ages 55-64 years.

FIG. 8. Coronary heart disease death rates, all ages.

cigarette smokers. Between 1961 and 1975 the proportion of current smokers among 663 men under 60 years with a first myocardial infarction decreased from 87.1% in the 1961-1966 period to 76% during 1967-1971 and to 66.1% during 1972-1975. There was a corresponding increase in the proportion of ex-smokers and non-smokers (Hickey *et al.*, 1981). Although the effect of cessation of smoking in lowering risk of CHD appears to be relatively immediate, the impact on mortality may be delayed for several years (Doll and Peto, 1969). It is possible

that changes in smoking habits may be in part responsible for the observed trends in mortality.

Apart from smoking there is little reliable information concerning other coronary risk factors. Data from the Irish Heart Foundation screening programme (Unpublished, 1980), confirm that between 1969 and 1978, the number of undetected hypertensives fell from 72% to 53% in large samples of men who presented for screening. No such data are available concerning diet, plasma lipids or other risk factors.

FIG. 9. Coronary heart disease deaths as a percentage of total deaths, all ages.

Conclusions

A study of certified deaths between 1968 and 1981 indicates that mortality from all causes commenced to decline from the mid-1970s in the Republic of Ireland. This trend was apparent for both sexes and for all ages examined except for men aged 55–64 years. A similar trend of lesser magnitude is apparent for coronary heart disease mortality in males but not in females. In males the decline in CHD mortality is more apparent in the 35–44 years age group than in the 45–54 years age group, and no decline is observed in the 55–64 years age group.

The decrease in the percentage of male cigarette smokers in the population, which is also reflected in a marked decline of smoking among males admitted to hospital with myocardial infarction, may be related to the recent trends in CHD mortality. Improved identification and treatment of hypertension may also have contributed to this recent decline.

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