Mortality from scleroderma in England and Wales 1968–1985

Alan J Silman

Abstract
Mortality data for scleroderma derived from death certificates from England and Wales for the years 1968–1985 were analysed. The overall crude mortalities were 0·9 and 3·8 per million per year in men and women respectively, which are similar to comparable data from the United States. There has been a small but statistically significant increase in mortality of 3% a year over this period, possibly reflecting an underlying increasing trend in incidence. Such analyses are subject to the limitation of the accuracy of death certificates, but in a disease as rare as scleroderma the death rates provide useful data on the trends in occurrence and death from this disease.

Population mortalities for diseases such as scleroderma, which are both rare and have a relatively high fatality rate, can provide an alternative to the more costly and time consuming multicentre surveys in yielding estimates of incidence. Additionally, if the natural history and response to treatment are relatively constant, both over time and between different populations, then a comparison of mortalities can provide a guide to both time and geographical trends in incidence. Furthermore, knowledge of both the incidence and mortality for scleroderma within the same population can be used to derive an estimate of patient survival, which otherwise would require the follow up of a large series of patients. Published mortality data from the United States show little change in mortality between 1959 and 1961 and between 1969 and 1977 with rates of about 1·5 and 3 per million per year in men and women respectively. In this report mortality data from the United Kingdom for 1968–85 are examined and their use for estimating comparative incidence and survival considered.

Methods
Scleroderma was first identified separately in the eighth revision of the International Classification of Diseases, and information on mortality from scleroderma has thus been available since 1968. The total numbers of deaths by sex and year of death for England and Wales were obtained from the Office of Population Censuses and Surveys for the years 1968–1973 and by age and sex from published annual data for the years 1974 to 1985. The numbers of deaths in any individual year were too small to yield reliable estimates of mortality, and thus the crude and the age and sex specific annual mortalities were calculated as the average annual mortality over the 12 year period 1974–1985 using million person years at risk in each age sex group over this period as the denominator. Trends during the period of observation were compared by examining three year moving averages—that is, the mean annual mortality during 1968–1970, 1969–1971, etc—to reduce the effect of random variation from a single year's data. These average annual rates were adjusted for age and sex using indirect standardisation taking the 12 year age and sex specific rates calculated above as those of the standard population. Linear regression was used to assess the magnitude and significance of any underlying trend. There were virtually no deaths from scleroderma in children during this period, and thus all rates are based on the adult (aged 15+) population.

Results
The results show overall mortalities of 0·9 and 3·8 per million per year in men and women respectively. Figure 1 shows the age mortalities by age and sex, demonstrating a negligible mortality in early adult life. There is a peak in both sexes in the 65–74 decade and a subsequent decline. There is a marked female excess at all age groups, but the largest relative excess of around 5:1 is seen in the 25–34 and 35–44 age groups compared with a ratio of 2·5:1 in the seventh and eighth decades. When a straight line was fitted to the age adjusted data this suggested a statistically significant average annual increase of about 3% during the 17 years of study (β=3·13, 95% confidence interval 1·76 to 4·52) (fig 2). The death rates for men varied during this period between 0·6 and 1·6 per million per year and those for women from 3·2 to 4·8 per million per year. There was a
improved the possibility of the effect of the differences in the completion of the age of the effects of the cause. More probably, perhaps, is the cause that the effect of the estimate of the ratio of the patient's death towards the ratio of the United States.

The recent estimate of the occurrence of the patient's death towards the ratio of the United States is about 62%. Many cases of scleroderma are probably undiagnosed in the community and thus would not appear in either incidence or survival data generated from hospital attenders. The "hospital" incidence of scleroderma, as stated, is apparently increasing, though this is not due to greater ascertainment of less severe cases, and thus future studies of the course of the disease might show a more favourable prognosis.

In conclusion, mortality from scleroderma in England and Wales is broadly similar to that in the United States, and the underlying incidence and increasing trend of the disease in the two countries is probably the same. Further, these mortality data, albeit with their imperfections, reinforce the results from hospital series of a high ultimate fatality from this disease in patients diagnosed in hospital.


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