

Multiple myeloma in south Cumbria: prediction fulfilled

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In 1985 a paper in this journal analysed an apparent cluster of multiple myeloma in South Cumbria, England.¹ The study was prompted by reports of seven cases of multiple myeloma in Walney Island. This is a small community adjacent to a shipyard that builds nuclear submarines and is 15 miles away from the Sellafield Nuclear Processing Plant. These seven cases occurred over the seven year time period 1974–1980, during which only 2.8 cases would have been expected on Poisson assumptions ($p = 0.02$). Because of the problems of post hoc cluster definition, we studied the incidence of multiple myeloma across the health district of South Cumbria. Using a case-control method no excess of known or possible risk factors were found to account for this high incidence and we concluded that “the most likely explanation is that this was a random occurrence which will not persist or recur”. We now present data that test this explanation.

Methods

Using the facilities of the Small Area Health Statistics Unit (SAHSU),² we tabulated observed and calculated expected cases of multiple myeloma in the original study areas for two time periods: 1974–1980 (to replicate the original finding) and 1981–1989 (to test the explanation). Expected numbers were standardised for age (five year age bands) and sex using the Northern Region of England as the standard. For the first time period, 1981 census population data were used. For the second time period, interpolated annual populations between the 1981 and 1991 censuses were used. SAHSU, which was set up on the recommendation of Sir Douglas Black’s committee of enquiry into the cluster of childhood leukaemia

near Sellafield,³ holds a number of routine datasets. Those pertinent to this study are cancer registrations, census data, maps, and postcode lookup files to assign case addresses to geographical areas. All of these datasets are available for the whole of England.

Results and Discussion

The SAHSU analysis assigned seven cases of multiple myeloma to Walney Island in 1974–1980, the same as the original study, and 58 cases to South Cumbria, one less than the original study. For the period 1981–1989, four cases were assigned to Walney where 4.51 would have been expected (relative risk 0.89, 95% confidence intervals 0.33, 2.36), and 63 cases were assigned to South Cumbria where 79.71 would have been expected (relative risk 0.79, 95% confidence intervals 0.62, 1.01).

It is possible that the low number of cases in 1981–1989 is because of underascertainment but this seems unlikely given the considerable and continuing concern about radiation induced cancers in the area. We believe that these findings strengthen the conclusion that the excess in 1974–1980 was a random occurrence.

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- 2 Elliott P, Westlake AJ, Hills M, *et al*. The Small Area Health Statistics Unit: a national facility for investigating health around point sources of environmental pollution in the United Kingdom. *J Epidemiol Community Health* 1992;46:345–9.
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