

the biologically important reduction in the proportion between observed and expected numbers as the length of pre-1933 employment is reduced, is also taken into consideration. It is clear, therefore, that the incidences both of asbestosis and of lung cancer associated with asbestosis have become progressively less as the number of years during which men were exposed to the pre-1933 conditions has decreased.

The extent of the risk of lung cancer over the whole period among the men studied appears to have been of the order of 10 times that experienced by other men. This agrees well with the data reported by Merewether (1949), but it is somewhat greater than that suggested by Gloyne's data (1951). The great reduction in the amount of dust produced in asbestos works during the period has been accompanied by a reduction in the incidence of lung cancer among the workmen so that the risk before 1933 is likely to have been considerably greater—perhaps 20 times the general risk. Whether the specific industrial risk of lung cancer has yet been completely eliminated cannot be determined with certainty; the number of men at risk, who have been exposed to the new conditions only and who have been employed for a sufficient length of time, is at present too small for confidence to be placed in their experience. It is clear, however, that the risk has for some time been greatly reduced. The extent of the reduction is particularly striking when it is recalled that between 1933 and 1953 the incidence of the disease among men in the country at large has increased sixfold.

Summary

The cause of death, as determined at necropsy, is reported for 105 persons who had been employed at one asbestos works. Lung cancer was found in 18 instances, 15 times in association with asbestosis. All the subjects in whom both conditions were found had started employment in the industry before 1923 and had worked in the industry at least nine years before the regulations for the control of dust had become effective.

One hundred and thirteen men who had worked for at least 20 years in places where they were liable to be exposed to asbestos dust were followed up and the mortality among them compared with that which would have been expected on the basis of the mortality experience of the whole male population. Thirty-nine deaths occurred in the group whereas 15.4 were expected. The excess was entirely due to excess deaths from lung cancer (11 against 0.8 expected) and from other respiratory and cardiovascular diseases (22 against 7.6 expected). All the cases of lung cancer were confirmed histologically and all were associated with the presence of asbestosis.

From the data it can be concluded that lung cancer was a specific industrial hazard of certain asbestos workers and that the average risk among men employed for 20 or more years has been of the order of 10 times that experienced by the general population. The risk has become progressively less as the duration of employment under the old dusty conditions has decreased.

I would like to offer my thanks to the management of the firm concerned for permission to carry out this work and to the Medical Officer and members of the staff of the works where the men were employed, who carried out the greater part of the work on which this report is based.

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