

WORKING GROUP FOR VINYL CHLORIDE CODE OF PRACTICE

Abstracts of papers submitted for publication on the Mortality Study of Workers exposed to Vinyl Chloride Monomer.

(A) THE MORTALITY EXPERIENCE OF WORKERS EXPOSED TO VINYL CHLORIDE MONOMER IN THE MANUFACTURE OF POLYVINYL CHLORIDE IN GREAT BRITAIN

By A.J.FOX and P.F.COLLIER

Identification particulars were obtained for over 7,000 men who were at some time between 1940 and 1974 exposed to vinyl chloride monomer in the manufacture of polyvinyl chloride. Approximately 99% of these have been traced and their mortality experience studied. The overall standardised mortality ratio, 75.4, shows a significant reduction compared with the national rates. Four cases of liver cancer are found. Two of these have been confirmed by a panel of liver pathologists as angiosarcoma and two as not angiosarcoma. There is no evidence supporting the hypothesis that cancers other than those of the liver are associated with exposure to vinyl chloride monomer. The two cases of angiosarcoma were found in men who had been exposed to high concentrations although the second man died only eight years after exposure. The industry in Great Britain has expanded considerably since the Second World War with over 50 per cent of men having entered within the last decade. Conclusions drawn about the influence of vinyl chloride monomer on the mortality experience of men in this industry must consequently be tempered by the reservation that the full impact may not yet be in evidence.

(Submitted to the British Journal of Industrial Medicine)

(B) LOW MORTALITY RATES IN INDUSTRIAL COHORT STUDIES DUE TO SELECTION FOR WORK AND SURVIVAL IN THE INDUSTRY

By A.J.FOX and P.F.COLLIER

Occupational groups are often described as relatively healthy because their mortality rates are lower than the national average. Although correct this confuses the issue for those interested in assessing the effects of exposure to a particular chemical. By a further analysis of data collected in a study of all men ever exposed to vinyl chloride monomer in the manufacture of polyvinyl chloride in Great Britain, three factors have been shown to contribute to the low mortality rates that were observed. The three factors, the selection of a healthy population for employment; the survival in the industry of the healthier men; and the length of time that this population has been pursued, have all been quantified. The mortality experience within five years of entering this industry was shown to be as low as 37 per cent of that expected; for circulatory disease and respiratory disease as low as 21 per cent. There was a progressive increase in standardised mortality ratio with the length of time since entry such that the effect had almost disappeared 15 years after entry. To avoid confounding the selection effect with the survival effect the latter was measured by separating men who survived 15 years after entering the industry according to whether or not they were still in the industry after this period. Those who had left experienced an overall standardised mortality ratio some 50 per cent higher than those still in the industry. This effect although consistent in the age groups between 25 and 74 and all cause groups studied was greatest in those aged between 25 and 44 and for lung cancer and respiratory disease.

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ANGIOSARCOMA STUDY

This study of all cases of angiosarcoma of the liver in Great Britain from 1974 onwards is continuing. The Panel of Pathologists is reviewing the histology of cases certified by cause of death between 1963-73 and a report should be ready this year. The follow-up of recent cases to investigate occupational exposure to vinyl chloride should also start soon : the Employment Nursing Advisers who will be interviewing the next of kin have undergone preliminary training at St. Thomas's Hospital and testing of the questionnaire they will be using is now taking place.

ANGIOSARCOMA OF THE LIVER IN PVC FABRICATORS (PROPORTIONAL MORTALITY STUDY)

The results of a study of death certificates (1970-72) bearing the occupation "plastics worker" was published in the Lancet, January 31st 1976. About 60% of these may have been engaged in working with PVC. The only statistically significant excesses for the causes of death were stomach cancer and diseases of the urogenitary system. The number of deaths due to all cancers was slightly higher than expected but there was a deficit of lung cancer and only one death from liver cancer (certified as primary carcinoma). There were three deaths from liver disease with 3.6 expected. This study does not say there is no excess risk from these causes of death - any excess mortality which may be present in PVC fabricators may not be large enough to be detected amongst plastics workers as a group.

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