

CARDIOVASCULAR RISK ASSESSMENT OF CARBON DISULFIDE EXPOSURE

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In the manufacture of viscose rayon, pulp is dissolved with carbon disulfide (CS_2) and hydrogen sulfide is formed as a by-product. Long-term exposure to CS_2 may cause or contribute to the development of, for example, behavioural deterioration, polyneuropathy, hormonal imbalance and vascular changes, such as coronary heart disease (CHD) or disturbed ocular micro-circulation. These conditions are promoted by several, perhaps many, factors which may act simultaneously and perhaps interact in influencing the development of the disease, particularly when a considerable time lag may occur between the beginning of the exposure and the manifestation of the disease. The many-fold syndrome of chronic CS_2 intoxication further complicates the diagnosis. More to the point, the problem does not appear approachable in a conventional, clinical way. Quantification of the risk - first assessed by the clinical acumen of doctors - is impracticable without epidemiology. This paper, drawing heavily on the Finnish experience, illustrates the evaluation of the various health risks associated with CS_2 exposure.

Cardiovascular Mortality

The Research Council's study of deaths resulting from CHD in British viscose rayon workers gave the first strong evidence for a causal relationship between long-term exposure to carbon disulfide and the increased risk of death from CHD (1). The proportional mortality rates and the calculations of observable death rates by type of exposure showed that men exposed for 10 years or more between 1933 and 1962, in a British viscose rayon plant, had a factor risk for death from CHD which was 2.5 times that of other workers. Over the 30-year period, 42% of all the deaths of rayon process workers were certified attributable to CHD. The proportion was 24% for other rayon workers and 17% for the other local men. The Registrar General's tables showed a national figure of 14%. This proportional mortality increased from 1943 but declined from 1958 to 1962, only slightly exceeding that