

EFFECTS OF EXPOSURE TO VINYL CHLORIDE
AN ASSESSMENT OF THE EVIDENCE
Sir Richard Doll, FRS

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As you are probably all aware, Sir Richard Doll was commissioned, two years' ago, to write a comprehensive document, assessing the strengths and weaknesses of the various Papers and Studies documented on VCM. In this document he has concluded the following :

1) ASL (Angiosarcoma of the liver)

He suggests there is a causal relationship and that the excess is largely concentrated among those who have experienced several hundred ppm of exposure.

2) Liver cancer

Sir Richard Doll attributes all the excess of liver cancer to ASL.

3) Lung cancer

Sir Richard Doll acknowledges a small risk limited to sub-groups with very high exposure. He states that the combined data for the mortality from respiratory cancer fail to support the hypothesis regarding lung cancer being VCM-induced, but the standard mortality ratio (SMR 97), are slightly higher in men observed 20 years' or more after first exposure and in men employed before 1956 in the UK, than in men first employed after 1955.

4) Brain cancer

Sir Richard Doll does not see an occupational link.

5) Haematopoietic cancer

Sir Richard Doll does not see an occupational link.

6) Thyroid and Melanoma

The evidence for any causal link is regarded as very weak.

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7) Digestive cancer

Sir Richard Doll shows that digestive less liver has a combined SMR of 82, therefore no link.

8) Non-cancer deaths

Cirrhosis of the liver - no causal link

Myocardial infarction - no causal link

Respiratory disease - no consistent evidence of causal, occupational link.

9) Teratogenicity - no effects have been demonstrated.

10) General Public Risk

Several surveys have sought evidence of the existence of such an effect, and suggestive evidence that such an effect may have occurred at a time when environmental pollution was much greater than it is now has been found in one.

On any reasonable criterion, the hazard to the general public (if there is any at all) must be negligible (Royal Society, 1983).

CONCLUSION

Occupational exposure to concentrations of VC of the order of 1000 ppm has caused the classical "vinyl chloride illness". Exposure to such levels, or perhaps lower levels of the order of several hundred ppm, has caused angiosarcoma of the liver after a latent period that is seldom less than 15 years.

The evidence now available from following up many thousands of men occupationally exposed to vinyl chloride suggests that a small risk of lung cancer may also have been produced, which must, however, have been substantially less (in absolute terms) than the risk of angiosarcoma of the liver. The balance of evidence does not support the idea that VC has caused cancer in any other organ.

There is no evidence that exposure to VC has caused any other disease.

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