

Letter to the Editor

"Diagnostic Bias in Occupational Epidemiologic Studies"

Hasmukh C. Shah, Ph.D.

Chemical Manufacturers Association

DRAFT
FOR DISCUSSION AND REVIEW ONLY
NOT TO BE RELEASED

Key words: vinyl chloride exposures, mortality study, emphysema,
brain cancer, diagnostic bias

Reprint Requests: Dr. H.C. Shah, Manager, Vinyl Chloride Panel,
Chemical Manufacturers Association, 2501 M Street,
NW, Washington, DC, 20037

Tel: 202-887-1192 **FAX:** 202-887-1237

22510001

The study of vinyl chloride workers by Wong et al (1991), is an important contribution to our knowledge of the health of people occupationally exposed to this substances. However, the discussion of findings with respect to two causes of death do not include some results that affect their evaluation.

One is the apparent excess of brain cancer. There is a good deal of data in the literature showing that diagnostic bias is important when one tries to attribute death to brain cancer (Greenwald et al 1981, Helseth et al 1988, and Kurland et al 1982). In particular, Greenwald et al have shown that an excess of brain cancer in Kodak employees was associated with more thorough diagnostic studies and access to comprehensive medical care, rather than with chemical exposure history. The study by Wong et al does not discuss diagnostic bias as a possible explanation of special importance, all the more so since there is no firm confirmation of this finding in other studies (Doll 1988).

The second finding whose significance is affected by other factors is the excess in emphysema mortality. This is a finding with an inverse dose-response relationship based on duration of employment and an ambiguous relationship with latency, accompanied by a complementary deficit of an almost equal magnitude for deaths due to other non-malignant respiratory diseases (which can be confused with emphysema). In 1988, Sir Richard Doll dismissed this excess emphysema mortality as not being an effect of vinyl chloride exposure because of such inconsistencies.

Readers who do not know the literature would not be able to put those findings from the Wong study in perspective without this kind of information.

References

Doll R (1988): Effects of exposure to vinyl chloride. An assessment of the evidence. Scand J Work Environ Health 14:61-78.

Greenwald P, Friedlander BR, Lawrence CE (1981): Diagnostic sensitivity bias - An epidemiologic explanation for an apparent brain tumor excess. J Occup Med 10:690-4.

Helseth A, Langmark F, Mork S (1988): Neoplasms of the central nervous system in Norway. II. Descriptive epidemiology of intracranial neoplasms 1955-1984. APMIS 96:1066-1074.

Kurland, L. et al (1982): The incidence of primary intracranial neoplasms in Rochester, Minnesota, 1935-1977. ANN NY ACAD SCI 381:6-16.

Wong O, Whorton MD, Follart DE, Ragland D (1991): An industry-wide epidemiologic study of vinyl chloride workers, 1942-1981. AMER J IND MED 20:317-34.