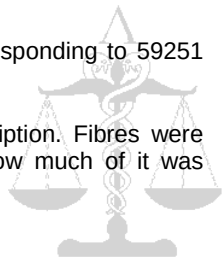
Other Lung disease

PRomundstad et al. American Journal of Epidemiology. May (2001) Vol. 153 #10 p 978.

A study of a proposed association between lung cancer and exposure to silicon carbide.

A historic cohort of SiC manufacturing workers were studied.

2620 men employed for at least 6 months in the SiC industry were included, corresponding to 59251 person years of follow up.



Exposure was classified according to records of industrial hygiene and job description. Fibres were selectively analysed (not just total dust) but it was unclear from the data just how much of it was respirable?

Cumulative exposure was calculated.

Asbestos was a known co-exposure for maintenance workers. Smoking status was recorded in medical files, (but the actual exposure was unknown).

Data was analysed for lag effects by disregarding exposure after a certain point in time.

Outcomes were obtained from the cancer registry.

Standardised Incidence Ratios (SIR) were measured:

- Lung cancer SIR = 1.9 (95% CI = 1.5,2.3)
- Upper respiratory tract cancer SIR = 1.7 (95% CI = 1.0,2.7)
- Stomach cancer SIR = 1.5 (95% CI = 1.1,2.0)

All others associations were found to be not statistically significant.

The most powerful results in the report were for 5 year exposure to SiC fibres; SIR = 2.9 (95% CI = 1.9, 4.2) and a 20 year lag after 5 yr. exposure SIR = 3.5 (95% CI = 2.1,5.6). If confirmed both would suggest that on the balance of probabilities the cancer was caused by exposure.

However, correlation between SiC and crystalline silica exposure was r = 0.8 (100% correlation would have an r-value = 1.0).

Comment
Cumulative exposure would be a satisfactory exposure variable if the fibres were known to be biopersistent. No comment was offered on the time that fibres remain in the lung.

The correlation between exposure to SiC and crystalline silica was very strong. It is not really possible to determine whether the apparent association of lung cancer with SiC exposure was actually due to SiC exposure or the crystalline silica exposure. Crystalline silica has been recognised as a lung carcinogen for several years.

Calculated exposures such as those used here, are often strongly contested.

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