

Lung Cancer

KSteenland et al. American Journal of Epidemiology. April (2001). Vol. 153 #7 p 695.

A study of an association between exposure to sand dust and, lung cancer. In 1997 the International Agency for Research on Cancer (IARC) designated crystalline silica as a carcinogen. At the time, the decision was disputed, not least because of potential confounding by exposure to Radon (a known lung carcinogen) during sand extraction. This study centred on sand processing after extraction, far removed from significant sources of Radon.

Personnel records for 461 employees from 18 sand processing plants were examined along with data on mortality. Exposure to sand dust was calculated.

In all, the study was based on 101177 person years at risk.

Typical exposures were 10 to 40 microgrammes/m³, though this reduced over time.

109 lung cancer deaths were found, as recorded on death certificates.

By comparing this data with the US population as a reference, the SMR for lung cancer was found to be 1.6 (95% CI = 1.3-1.9)

No significant trend with years of exposure was found (but this would not account for intense bursts of exposure).

Comment

The study tends to support the IARC classification, even though there may be doubts about exposure calculations.

The exposure limit for silica dust in the US is 50 microgrammes/m³. This result will add to pressure to reduce this standard.

A risk ratio of 1.6 would not provide sufficient evidence on the balance of probabilities that an individual case of lung cancer could be assigned to silica dust as its cause.

It is estimated that more than 100,000 US workers are exposed to silica dust at higher than permitted levels. Crushed silica is used in sandblasting, polishing, glass making...

