62 EXPOSURE TO IRON AND WELDING FUMES, WOOD DUST AND FORMALDEHYDE AND THE RISK OF RESPIRATORY CANCERS - A WHOLE-POPULATION REGISTER-BASED STUDY

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10.1136/oemed-2011-100382.62

Objectives To identify associations between (1) exposure to iron and/or welding fumes and the incidence of lung cancer; (2) exposure to wood dust and/or formaldehyde and risk of nasal, nasopharyngeal, and lung cancer.

Methods The cohort of all Finnish men born in 1906–1945 and employed in 1970 was followed-up through the Finnish Cancer Registry for incident cases of cancer of the lung (N=30 137), nose (n=292) and nasopharynx (149) during 1971–1995. Their census occupations in 1970 were converted to estimates of cumulative exposure (CE) to iron fume and dust, welding fumes, wood dust and formaldehyde by Finnish job-exposure matrix on the basis of likelihood, average level, and estimated duration of exposure. Relative risk estimates for categorised cumulative exposure were defined by a Poisson regression, adjusted for exposure to asbestos, silica dust, smoking, and socioeconomic status.

Results The relative risks for lung cancer increased as the CE to iron and welding fumes increased - the respective relative risks estimated for squamous-cell carcinoma of the lungs were 1.94 (95% CI 1.35 to 2.78) and 1.55 (1.08 to 2.24), as the new findings. Men exposed to wood dust had a significant excess of nasal cancer (RR 1.59, 1.06 to 2.38), specifically in nasal squamous cell carcinoma (1.98, 1.19 to 3.31).

Conclusions Occupational exposure to iron and welding fumes was associated with an increase in lung cancer risk. Occupational exposure to wood dust appeared to increase the risk of nasal cancer but not that of nasopharyngeal cancer or lung cancer. Formaldehyde appeared to have no risk increasing effect.