Abstracts

59 AN INTERNATIONAL HISTORICAL COHORT STUDY OF WORKERS IN THE HARD-METAL INDUSTRY - AUSTRIAN COMPONENT
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Objectives Researchers at the University of Pittsburgh and the University of Illinois at Chicago are coordinating an international historical cohort study of workers in the hard-metal industry. Funding is provided in part by the International Tungsten Industry Association. From Austria they approached a large industrial plant in Reutte, Tyrol, and the Institute of Environmental Health at the Medical University of Vienna to coordinate the Austrian part of the study that is financially supported by the national workers insurance company.

Methods As a first result of the cooperation between Reutte and Vienna a cross-sectional study was designed based on a questionnaire directed to all present workers and to past workers with still valid addresses. This questionnaire served two purposes: (1) to announce the aim of the cohort study and (2) to obtain more detailed data on smoking history and general health history than is available in the company records.

Results In spite of repeated advertising of the questionnaire by the Reutte management only approximately 10% of all addresses (233 persons in total) responded. Active workers were overrepresented while only 78 (mostly only recently) retired workers completed the questionnaire. Also, current white collar (office) workers were overrepresented (58 persons).

Conclusions Although a respiratory disease or hypertension were each reported by about 10% of respondents the subjective health status was generally good. Better health was reported by office workers while working in departments with the highest dust exposure was not associated with poorer health. Increasing age did not consistently lead to higher symptom rates while smokers reported poorer health not only for respiratory but also for rheumatic and psychiatric symptoms.

We will also report on the progress of our ongoing work on the international epidemiology study.

60 CANCER MORBIDITY OF LEAD EXPOSED WORKERS IN KOREA
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Objectives To compare cancer patterns in lead exposed workers with the Korean general population, and to explore the relationship between cancer and lead exposure in an occupational setting.

Methods Using from the Korean annual medical surveillance for exposure to lead, a cohort comprising 75,184 lead exposed workers working between January 1st, 2000 and December 31st, 2004 was compiled. This cohort was merged with the Korea National Central Cancer Registry (KNCCR) in order to evaluate the cancer morality for these workers between 2000 and 2008.

Results There were 793 cases cancer and, the incidence of stomach cancer (SIR 1.27, 95% CI = 1.01–1.36) was found to be elevated in lead chromate workers. Excesses were observed for kidney (2.15.1.19–3.88) and bladder cancers (2.29.1.149–4.58) in lead exposed workers ≥20 years of job duration, kidney cancer (2.25.1.121–4.18) in workers with ≥10 ug/dl of blood lead level and lung cancer in female workers with ≥10 ug/dl blood lead level.

Conclusions Our study showed excess of lung cancer in female workers, stomach cancer in lead chromate exposed workers and a possible dose-response relationship between kidney cancers and lead exposure.

61 AN INTERNATIONAL HISTORICAL COHORT STUDY OF SWEDISH WORKERS IN THE HARD-METAL INDUSTRY
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In 2006, IARC found limited evidence in humans and sufficient evidence in animals that tungsten carbide (WC) with cobalt binder (WCCo) acted as a lung carcinogen (Group 2A). A Swedish historical cohort study was established as part of the international cohort. Three Swedish sites are included,
OBJECTIVE: To characterize the relationship between mesothelioma risk and asbestos lung burden in Great Britain. To identify the asbestos lung burdens due to current or recent occupational and environmental asbestos exposures, and estimate consequent mesothelioma risks.

METHODS: Lung tissue and lifetime occupational histories were obtained from 136 mesotheliomas, 263 lung cancers and a random sample of 130 individuals from the British population obtained from those having surgery for pneumothorax. Asbestos lung burdens by fibre type were estimated by Transmission Electron Microscopy. Odds ratios for mesothelioma were estimated for asbestos lung burden categories by logistic regression using lung cancers as controls; mesothelioma risk was then modelled by adjusting for asbestos-related lung cancer risk among controls. Changes in mesothelioma risk arising from occupational and environmental exposures in the past and more recently were estimated from asbestos lung burdens of pneumothorax patients by period of birth.

RESULTS: A linear relationship between mesothelioma risk and lung burden was seen up to 0.5 million fibres per dry gram of lung (mfpg), and a burden of 0.1 mfpg was associated with a lifetime mesothelioma risk of 1.4%. Mean asbestos lung burdens for mesothelioma, lung cancer and pneumothorax cases born <1965 were positively correlated with the mesothelioma ORs for job categories from previous analyses, with highest burdens associated with construction jobs. Across all jobs, mean lung burdens were highest for mesothelioma (0.223 mfpg), followed by lung cancer (0.060), pneumothorax cases born <1965 (0.045) and finally pneumothorax cases born more recently (0.004).

CONCLUSIONS: The average lifetime risk of mesothelioma in those born since 1965 is an order of magnitude lower than for those born in earlier decades. Lung burden analyses from a larger sample of pneumothorax patients born since 1965 are needed to more precisely identify recent exposure circumstances that contribute to their residual mesothelioma risk.
61 An international historical cohort study of Swedish workers in the hard-metal industry

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