Background A systematic review of the associations between occupational chemical exposures and cardiovascular diseases has been performed under management of Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU).

Methods Inclusion criteria: (i) epidemiology publication in English in peer-reviewed journal between 1970 and 2016, (ii) cohort studies with at least 50 exposed participants or case-control studies with at least 50+50 participants. Relevance and quality were assessed using predefined criteria. Level of evidence was assessed using the GRADE system. Consistency of findings was examined for a number of confounders and regarding the healthy worker effect when possible.

Results More than 8000 abstracts were screened. 162 articles of high or medium high scientific quality were finally included. There was moderately strong evidence (grade 3 out of 4) for a relationship between silica dust, engine exhaust and welding and IHD incidence. Limited evidence (grade 2) was found for arsenic, benz(a)pyrene, lead, dynamite, carbon disulphide, carbon monoxide, cutting fluids, TCDD, asbestos and tobacco smoke in the work environment. Results for stroke, cor pulmonale and high blood pressure will also be reported.

Conclusions This review identified several established associations, some less established and many knowledge gaps including lack of studies on women. Many chemical exposures have not been studied epidemiologically and there is often a shortage of exposure estimates, particularly concerning intensity and long-term exposure. A comprehensive risk analysis of chemical exposures must use social, environmental and experimental results as well.

Oral Presentation

Cardiovascular Disease

0360 OCCUPATIONAL EXPOSURE TO RESPIRABLE SILICA DUST IN MEN AND WOMEN AND RISK FOR ACUTE MYOCARDIAL INFARCTION

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Respirable silica dust is a common and serious occupational hazard to workers' health. Inhalation causes inflammation which is a risk factor for cardiovascular disease, but few studies have confirmed a relationship. In the present study, we have investigated the risk of myocardial infarction in workers exposed to respirable silica dust, as well as differences in sensitivity based on gender.

The cohort consists of manual workers in the Swedish National Census in 1980 with information on demography and occupation (1960–1990). Information on hospital admissions for acute myocardial infarction and cause of death were obtained from nation-wide registers. A job-exposure matrix

was used to assess lifetime occupational exposure. No smoking data was available.

Among manual workers ever exposed to respirable silica dust, the hazard ratio (HR) for acute myocardial infarction was 1.29 (95% Confidence Interval (CI) 1.15–1.46) for women, and 1.02 (95% CI 1.00–1.04) for men, respectively. In the highest quartile of cumulative exposure the HR was 1.66 (95% CI 1.27–2.18) for women, and 1.06 (95% CI 1.03–1.10) for men, respectively. We found a dose-response relationship between exposure and disease. The population etiologic fraction of disease for women was 11%. In absolute numbers this corresponds to 7 extra cases/10000 person years among exposed women in the highest exposed group.

In conclusion, occupational exposure to respirable silica dust was in this study related to an increased risk for acute myocardial infarction in women, indicating a slightly increased sensitivity of the exposed women.

Oral Presentation

Cancer

0361 A 49 YEAR FOLLOW-UP OF MORTALITY IN THE BRITISH RUBBER INDUSTRY

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Rubber workers in Great Britain were historically exposed to various carcinogenic substances, including β -naphthylamine, which was removed from industrial processes in 1949. The Health and Safety Executive (HSE) initiated in 1967 a prospective occupational cohort study of British rubber industry workers, including men 35 years of age and older, to examine cancer mortality (n=40 867, representing 381 factories). Findings from a 10 year follow-up of that cohort suggested excess mortality from cancers of the bladder, lung, and stomach, which differed by exposure to naphthylamines, as well as by industry sector and job code.

The purpose of this analysis is to extend mortality follow-up through to 2015, allowing an assessment of cancers in older ages and with longer latency periods. As well as headline Standardised Mortality Ratios (SMRs) for the cancer subtypes previously investigated, we will present mortality risks for a range of causes including leukaemia, multiple myeloma, circulatory and respiratory diseases. We will use England and Wales reference rates to compare mortality by employment duration and sector in the rubber industry. Preliminary analysis of a majority subset of the cohort (n=34,595) to 2015 identified an elevated all cause SMR of 1.11 (95%CI 1.10–1.12). More detailed results from this multi-decade follow-up of workers from rubber manufacturing will provide valuable insights into cancer mortality risks for exposed occupational populations, both in the UK and elsewhere.