Oral presentation

0364 CANCER INCIDENCE AND MORTALITY IN AN AUSTRALIAN COHORT OF LEAD WORKERS WITH HISTORICALLY COLLECTED BLOOD LEAD DATA

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Objectives To measure cancer incidence and mortality in a retrospective cohort of Australian lead-exposed workers.

Method The cohort comprised male lead workers who had been participants in state government occupational blood lead surveillance programs conducted since the 1970s. Historically collected blood lead level data were accessed from surveillance records. Linkage was undertaken to the National Death Index and the Australian Cancer Database to identify causes of death and incident cancers.

Results 4114 male subjects were followed for an average of 16.2 years, giving 68 172 person years. All incident cancers were lower than expected (SIR 83, 95% CI: 73–95). The incidence of liver cancer was elevated (SIR 217, 95% CI 103–454), as was the incidence of oesophageal cancer (SIR 240, 95% CI: 129–447). Among those cohort members with at least one blood lead result in excess of 30µg/dl, oesophageal cancer incidence was elevated (SIR 755; 95% CI 314–1813). Other cancer types were not found to occur in excess. All cause mortality was greater than expected (SMR 111; 95% CI 101–123) based on 406 deaths. Non-malignant digestive system deaths (SMR 167; 95% CI 110–250) and deaths from external causes (SMR 135; 95% CI 105–174) were also elevated.

Conclusions The increase in gastrointestinal stract cancers is consistent with some previous studies of lead workers. Confounding from lifestyle factors, such as alcohol, could not be examined. It is planned to include this cohort in an international pooling study of lead exposed workers.

0365 CHALLENGES TO OCCUPATIONAL CANCER EPIDEMIOLOGY IN QATAR


Objectives Assess exposures to occupational carcinogens in Qatar

Method IARC conducted a review of environmental carcinogens (IARC Group 1 and 2A) in Qatar 2013. Information was ascertained from ministries and a survey among Qatar Petroleum associated companies.

Results Major parts of the population are migrant workers; male migrant workers are primarily recruited for the construction and the oil-and gas industry, while female migrant workers mostly do domestic work. The predominant material for construction is lime stone with increasing use of gabbro containing low silica levels compared to quartz. Only small quantities of asbestos have been used. The technologies used for natural gas extraction in Qatar are mostly closed processes.

Conclusions Workers in construction and in the oil and gas sector are mainly migrant workers who remain in the country for short
BREAST CANCER INCIDENCE AMONG FLIGHT ATTENDANTS

Objectives Previous studies suggest that flight attendants have a higher incidence of breast cancer than the general population; however, the reason remains unclear. We evaluated the relation of breast cancer incidence with estimates of cosmic radiation dose and metrics of circadian rhythm disruption among a cohort of 6092 female former US flight attendants.

Method Cohort members (or their proxy) completed a computer assisted telephone interview that collected data on incident cancers and non-occupational risk factors for breast cancer. Incident cancers were also identified through linkage with state cancer registries. Life table analyses were conducted to compare breast cancer incidence among the cohort to that in the general population and to evaluate exposure-response relations.

Results Breast cancer incidence was increased compared to the general population (observed 343; standardised incidence ratio 1.37; 95% confidence interval 1.23, 1.52). Among flight attendants, breast cancer was not significantly associated with ten-year time spent working during normal sleep hours, or time zones.

Conclusion Our findings suggest a potential association between metal fume exposure and COPD. Further study with a prospective design is needed to investigate the excessive decline of lung function by welding fume exposure.

Oral presentation

THE RELATIONSHIP BETWEEN WELDING FUME EXPOSURE AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN SHIPYARD WELDERS IN KOREA

Objectives Welding fume is suspected to accelerate the decline of lung function and development of chronic obstructive pulmonary disease (COPD). The aim of this study was to examine the relationship between welding fume exposure and COPD in Korean shipyard welders.

Method 240 male welders who were working at two shipyards and took the annual health examination including pulmonary function test in 2010 participated in this study. A questionnaire about smoking habits and occupational history was administered. PFT was carried out with strict quality control measures. Exposed fume concentrations were estimated using 884 welding fume measurements taken 2002–2009 in one of the shipyards. Linear multiple regression was employed to evaluate the association between cumulative fume exposure and lung function parameters. Logistic regression was employed to test the excess risk of COPD by cumulative fume exposure. Age, height, the smoking amount, and cumulative fume exposure were incorporated as independent variables in those models.

Results Mean age was 48, and mean work duration was 18 years. The mean cumulative fume exposure was 7.7 mg/m³. The prevalence of COPD was 14.6%. FEV₁ and FVC showed negative correlations with cumulative fume exposure, but statistically non-significant. Odds ratios of COPD were significantly elevated for middle (5.02, 95% CI:1.27–33.55) and high exposure group (6.20, 95% CI:1.41–44.98) compared to the low fume exposure group.

Conclusion Our findings suggest a potential association between welding fume exposure and COPD. Further study with a prospective design is needed to investigate the excessive decline of lung function by welding fume exposure.