O6E.6 OCCUPATIONAL EXPOSURES AND ALS: INTERNATIONAL COLLABORATIONS AND NEW WAYS TO IDENTIFY RISK FACTORS

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Background Associations between occupational exposures and amyotrophic lateral sclerosis (ALS) have been suggested, but results are inconsistent. Case-control studies are best suited for inclusion of clinically confirmed incident cases, but prone to recall bias. Cohort studies are free from recall bias and may have pre-symptomatic blood stored, to inform about exposures (e.g. lead) well before disease onset.

Methods An ongoing nation-wide ALS case-control study has been conducted in the Netherlands since 2006 (currently over 3000 cases and 4500 controls) to study risk factors and possible gene-environment interactions. Part of this study has been pooled with case-control studies from Ireland and Italy (Euro-MOTOR), where the same questionnaire was administered.

Results Within the Euro-MOTOR study, ~1300 cases and ~2600 controls had full job histories available. Occupational exposures to a range of agents were assessed using job-exposure matrices. Analyses were adjusted for age, sex, centre, education, smoking and alcohol. We found significant associations between ALS and exposure to silica (OR 1.73, 95% CI 1.28–2.33), extremely low-frequency magnetic fields (OR 1.16, 95% CI 1.01–1.33) and electric shocks (OR 1.23, 95% CI 1.05–1.43), independent of the other occupational exposures studied.

Future perspectives A nested ALS case-control study was conducted within the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort. 219 people who died from ALS have been identified, and pre-symptomatic blood samples from 168 of these cases are available for analyses. Three controls per case were selected by incidence density sampling matched by age at recruitment, sex and study centre. Metal concentrations will be analysed in the erythrocytes. This would be the first prospective study on the association between exposure to metals and ALS.

Conclusion Each study design has its strengths and weaknesses, and ALS should be investigated in a range of (occupational) studies to gain better understanding of its aetiology.

Injuries

O7A.1 ABSTRACT WITHDRAWN

O7A.2 GENDER, IMMIGRATION STATUS, AND WORK DISABILITY FOR ACUTE INJURIES

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Background The nature of work is changing rapidly with precarious work emerging as an occupational health issue. Both immigration status and gender are associated with precarious work and health inequalities. This paper investigated the modifying effect of gender on the relationship between immigration status and work disability duration for acute injuries in the Canadian context.

Methods Workers in the Canadian jurisdiction of British Columbia with a workers’ compensation claim from 1995 to 2012 were linked to immigration data (n=8,838,300 claims), and categorized as recent (<10 years, 6.7%) or established immigrants (10+years, 4.0%), versus Canadian-born (89.3%). Work disability days one-year post-injury were modeled using quantile regression, adjusted for confounders and stratified by gender (29.6% women). The analyses was restricted to fractures (n=55,324 claims, 19.4% women), a ‘visible’ injury with a prescribed treatment trajectory within a public health care system.

Results Disability duration for a work-related fracture was significantly longer for immigrant workers compared to Canadian-born workers regardless of immigration timing or gender, across the disability distribution: 7 to 10 days longer at the 25th percentile [e.g. recent immigrant women 10.4 (95% CI 5.6, 15.2) and men 8.9 days [6.8, 10.9]]; 12 to 15 days longer at the 50th percentile [e.g. recent immigrant women 15.3 [8.0, 22.7] and men 15.6 [12.5, 18.8]]; and 22 to 26 days longer at the 75th percentile [e.g. established immigrant women 22.5 [9.4, 35.8] and men 21.9 [13.4–30.3]].

Discussion Longer disabilities durations for fractures suggest that health inequalities and work vulnerabilities for immigrant workers are not readily explained by subjective injury characteristics or variability in clinical treatment guidelines. The current findings informed two research initiatives to investigate precarious employment on worker health, and to identify policy levers to mitigate inequalities.

O7A.3 CREATING SAFER WORKPLACES: LEARNING FROM WORK-RELATED FATAL INJURY IN NEW ZEALAND

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Background NZ’s workplace fatality record is high compared to similar countries, with a rate twice that of Australia and four times that of the UK. The reasons for NZ’s substandard performance are highly debated, and in-depth analysis to inform this debate is limited by a dearth of detailed fatality data. This study aims to inform work-related injury prevention efforts for NZ by: i) enumerating the fatal injury burden; and ii) identifying high risk groups and circumstances to prioritise and target preventive action.

Methods A dataset spanning forty-years of Coronial records was created by collecting data for the period 1995–2014 and appending this to existing data for 1975–1994. Data collection involved: 1) identifying possible cases aged 0–84 years from mortality records using injury external cause codes, 2) linking these to Coronial records 3) retrieving and reviewing records
Hazards and Injuries Associated Among Small Scale Gold Miners in the Philippines

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Worldwide, small-scale mining (SSM) provides employment to about 13 million people and affects the livelihood of 80–100 million. This study investigated the ergonomic and safety hazards of small scale miners in one of the largest small scale mining area in the Philippines which is the area of Itogon, Benguet. There were 93 small scale miners who were included in the study as they complied with the inclusion criteria. The methods consisted of survey questionnaires, health physical examination guide, individual interviews, and work process observation tool. The results showed that the small-scale miners worked for an average of 10.7 years, and a maximum work year of 40. The most widely employed mining technique was the dog-hole mining consisting of several sub-processes -tunneling, ball milling and gravity concentration, cyanide leaching, and smelting. The ergonomic and safety hazards identified were noise exposure from the dynamite blast, temperature extremes, and exposure to dust from dynamite blasting. The miners experienced prolonged coughing and bending, prolonged handling of tools, and carrying heavy sacks filled with mineral ores. In the ball milling and gravity concentration process, machine-related accidents were noted such as cuts from the crusher. In the cyanide leaching process, smoke from burning ore and coal as well as exposure to borax and nitric acid fumes. Burn injuries were reported among miners. A third (31.2%) of miners have experienced accidents. The most common injury was laceration at 47.8%, followed by methane inhalation, fracture of hand digits, and contusion at 17.4%. The most prevalent health symptom reported by the miners was muscle pain. It is suggested that intervention programs for ergonomics and safety measures be implemented by the local government.

Psychosocial Factors

07B.1 Modelling Mortality by Suicide Among Women at Work in the Swiss National Cohort

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Context The aim of this study was to describe the factors associated with mortality by suicide among women at work with a particular focus on work-related factors.

Population and methods The study population was based on the data of the Swiss National Cohort (SNC) consisting in all Swiss residents recorded in the 1990 and/or the 2000 compulsory national censuses linked to emigration and mortality registers. Within the SNC we selected all working women aged between 18 and 65 at the official census dates.

Following work-related variables were available in both censuses: Socio-economic status, weekly hours of work, the sector of activity according to the Swiss NOGA scheme and the job title coded according to ISCO. The date of beginning of follow-up was the date of the relevant census. The date of end of follow-up was the earliest of the 65th anniversary, dec 31st 2014 (the end of mortality follow-up), the date of loss of follow-up or dec 4th 2010 if no declared work in the 2000 census. The risk of suicide was modelled using negative binomial regression incorporating the number of person-years as offset.

Results The cohort comprised 1,843,619 women and 2524 deaths by suicide corresponding to 24.9 million person-years. The most significant non-occupational predictors of suicide were age, civil status, period, nationality and geographical regions. Part-time work and long working hours were associated with increased suicide rates. Health and social activities had the highest suicide risks and education the lowest. Overall the job title according to ISCO-1d was not significant. However the rank of suicide risk among women followed approximately the skill levels associated with these codes. Of interest is however the high RR among professionals.

Conclusion After accounting for the main non-occupational factors, the suicide risk varied significantly with some work-related factors that were specific for women.

07B.2 Pilot Project for Identifying Psychosocial Risk Factors Among Senior Physicians in the Pediatric Medical Center of a University Hospital Center

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Context After several warning signals coming from senior physicians working in a Department of pediatrics at a large university hospital, the Department of occupational health...