Withdrawn at the author's request

Oral Presentation

Other

0454

MULTIPLICATIVE TWO-WAY INTERACTIONS BETWEEN OCCUPATIONAL LUNG CARCINOGENS IN THE SYNERGY PROJECT

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Objective The Synergy project derived quantitative exposure-response associations for five occupational lung carcinogens (asbestos, chromium-VI, nickel, polycyclic aromatic hydrocarbons, and respirable crystalline silica) and lung cancer in a pooled analysis of population based case-control studies. Considering a proportion of workers were exposed to more than one of these carcinogens, a joint effect on lung cancer risk is possible.

Methods We estimated joint effects by including an interaction term between two occupational carcinogens in the logistic regression models that were developed for the Synergy project. Analyses were conducted with either both exposures dichotomized (ever vs. never exposed), or with one exposure on a continuous scale (cumulative exposure), and the other dichotomized. Analyses were conducted for all lung cancer subtypes combined and stratified by subtype. We applied a Bonferroni correction.

Results We observed a negative interaction between occupational exposure to nickel and asbestos. The interaction effect was largest for the subtype of squamous cell carcinoma: ratio of odds ratios: 0.76 (95% CI 0.65–0.88), odds ratio of the joint effect: 1.40 (95% CI 1.26–1.56). No other interaction effects were statistically significant after correction for multiple testing. Analyses in which one of the exposures was included on a continuous scale resulted in similar results.

Conclusion We observed little evidence for a statistical multiplicative interaction between most of the occupational carcinogens. The negative multiplicative interaction between asbestos and nickel was not explained by a high correlation between these exposures. Ignoring specific study specific matching criteria might have introduced some bias in the results.

Oral Presentation

Disease Surveillance

0456

INITIAL RESULTS FROM A NEW CANADIAN OCCUPATIONAL DISEASE SURVEILLANCE SYSTEM

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Large scale occupational disease surveillance has been challenging in many countries, with a few notable exceptions, such as the Nordic countries with their substantial record linkage abilities. We present initial results for lung cancer from a new Canadian Occupational Disease Surveillance System.

The surveillance cohort was created using data from Ontario, Canada time-loss workers' compensation claims 1983–2016 (96% for injuries) linked to cancer registry records. Follow-up was from first claim date until diagnosis, death, loss-to-follow-up or 2016. Hazard ratios (HRs) were calculated for each industry/occupation using Cox Proportional Hazard models, adjusted for year of birth and stratified on gender.

The study population was 7 40 000 women and 1,430,000 men. Significant excess risks were observed in many of the a priori suspected occupations and industries, particularly in construction, mining, and transportation occupations. In addition, other relevant associations were observed among both women and men, such as for janitors and cleaners (men: HR=1.22, 95% CI=1.16–1.29, women: HR=1.22, 95% CI=1.13–1.32) and primary metals industry (men: HR=1.18, 95% CI=1.11–1.25, women: HR=1.20, 95% CI=0.89–1.60). Many sex-specific associations were also observed, particularly in women (such as printing and publishing industries: HR=1.42, 95% CI=1.23–1.65 and chemical, rubber and plastic processing occupations HR=1.31, 95% CI=1.15–1.51), which will need further investigation.

The excess risks observed in many a priori suspected groups provides a good confirmation that this study can produce valid results and identify new associations. Triage methods are being developed to target new associations in need of further investigation. Future analyses will use hospital discharge data and outpatient visits.