–4.4% (95% CI: –6.8, –2.0) per year was observed. A large variation in risk was observed with the incidence for the highest risk occupation, ‘laundrers, dry cleaners and pressers’, being more than 50 times the average of all other occupations. A high QSAR asthma hazard index was found in agents which were likely sensitizers.

Conclusion The data highlight a number of occupations at increased risk of adverse respiratory outcomes attributed to cleaning agents. Chemical features of the cleaning agents helped distinguish between sensitizing and irritant agents.

Poster Presentation

Occupational Medicine (SCOM/Modernet)

0132 IMMUNOLOGICAL HAZARDS IN ENGINEERED NANOMATERIAL HANDLING WORKERS

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Based on our previous study, we found that allergic dermatitis was a prominent presentation in worker with engineered nanomaterials (ENMs) exposure. The objective of this study was to disclose the plausible immunological mechanism of allergic diseases in ENMs handling workers. We investigated 14 ENMs factories with 227 exposed workers and 137 non-exposed controls in Taiwan. We used questionnaire to collect exposures severity and probability scores and group the risk level (1 to 4) of each worker. The greater the risk level (RL), the higher the severity of nanomaterial toxicity and/or the higher the exposure probability. We found the distribution of characteristics in months of work ($p=0.05$), gender ($p<0.01$), education ($p=0.001$), smoking ($p=0.001$) and alcohol drinking ($p=0.011$) differed significantly between RL and control group. The LnIgE values among characteristics of study population showed the younger age ($p<0.01$) and male ($p=0.034$) had higher LnIgE values. After adjusted the confounders in multiple linear regression models, our results demonstrated that increased LnIgE values was significantly associated with RL2 ($p=0.048$), months of works above 42 months ($p=0.008$), CNT exposure ($p=0.047$) and nano-SiO₂ exposure ($p=0.034$).

To our best knowledge, our study was the first study between ENMs exposure and immune responses in human. Our study highlighted that serum LnIgE values and exposure probability scores could have a positive association in the ENMs exposed worker. Moreover, the worker who exposed to CNT and nano-SiO₂ might be more susceptible to IgE mediated allergic problems, like allergic dermatitis in our study population.

Oral Presentation

Respiratory

0133 ENVIRONMENTAL AND OCCUPATIONAL TRIGGERS OF COPD SYMPTOMS: A CASE CROSSOVER STUDY

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Introduction This study investigated the hypothesis that common occupational and environmental chemical exposures with known irritant or sensitizing properties trigger exacerbations for patients with chronic obstructive pulmonary disease (COPD).

Methods We conducted a case crossover study in 168 COPD patients who were members of a disease management group (DMG) in central Massachusetts. Participants completed a baseline health survey and several short exposure surveys. Exposure surveys were administered by a nurse when a participant telephoned to report an exacerbation (case periods) and at a maximum of 3 randomly identified control periods when they were not experiencing an exacerbation. We compared exposures in the week preceding an exacerbation with exposures in normal (non-exacerbation) weeks. The questionnaire assessed short-term (one week) home, community and workplace activities and exposures that may be associated with COPD exacerbation.

Result Self-reported exercise was protective (OR=0.59 95% CI: 0.35–1.00). Among the chemical exposures, car and truck exhaust (OR=4.36, 95% CI: 1.76–10.80) and use of scented laundry products (OR=2.69, 95% CI: 1.31–5.52) showed strong positive effects. Self-reported respiratory infections were strongly associated with COPD exacerbation (OR=7.90, 95% CI: 4.29–14.50). Variations in outdoor temperature were associated with COPD exacerbation risk (moderate versus cold temperature OR=1.95, 95% CI: 0.26–0.70).

Discussion These results suggest that some environmental chemical exposures may play a role in triggering COPD exacerbations. If confirmed, they may provide useful guidance for COPD patients to better manage their diseases.

Oral Presentation

Methodology

0134 WHAT TO EXPECT FROM YOUR EXPECTED

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Objectives Epidemiologists often compare the observed number of deaths in a cohort to the expected number obtained by