Poster Presentation

Shift Work

0230 THE RELATIONSHIP BETWEEN SHIFT WORK AND METABOLIC SYNDROME AMONG ELECTRONICS INDUSTRY WORKERS

Sae-Young Lee*, Gyeongho Lee, Sujung Lee, Hyunjoo Kim, Jungyeon Hong, Mo-Yeol Kang. Safety Health environment RandD team, SK hynix, Icheon-si Gyeonggi-do, Republic of Korea; 2Department of Occupational and Environmental Medicine, Ewha Woman’s University Mok-dong Hospital, Seoul, Republic of Korea; 3Hanshin Medipia, Seoul, Republic of Korea; 4Seoul St. Mary’s Hospital, Seoul, Republic of Korea

Objective This study aimed to determine an association between shift work and the metabolic syndrome (MetS) in the electronics industry.

Methods In total, 12,583 employees who participated in health examination and questionnaire were evaluated. MetS was measured by the National Education Program Adult Treatment Panel III (NCEP) criteria using examination results. We performed multiple logistic regression analyses to test the relationship between shift work and MetS.

Results The prevalence rate of MetS among total group was 8.8%. After controlling for the potential confounders, MetS of male daytime workers was more prevalent compared to shift workers. However, prevalence of the MetS showed significant increasing risk according to the number of years of shift work (a period of 5–9 years: OR 3.48, 95% CI 1.20–10.81; 10~14 years: OR 5.17, 95% CI 2.48–10.81 vs. 1~4 years). Although no significant differences in prevalence of the MetS between daytime and shift work were observed, the risk for the development of MetS increased with accumulated years of shift work among women (a period of 5–9 years: OR 3.12, 95% CI 1.72–5.67; 10~14 years: OR 5.57, 95% CI 2.91–10.66; 15 years: OR 5.17, 95% CI 2.48–10.81 vs. 1~4 years).

Conclusion This study suggests that the duration of shift work increases the risk for developing the MetS.

Poster Presentation

Respiratory

0231 OCCUPATIONAL RESPIRABLE CRYSTALLINE SILICA EXPOSURE RELATED TO FEV1 DECLINE AMONG NORMAL OR EARLY ABNORMAL ILO CHEST-RADIOGRAPHS OF SANDSTONE-WORKERS; A SIX MONTH FOLLOW UP

Naesinee Chaiear*, Peerawat Trakultaweesuk, Watchara Boonsawat. 1Unit of Occupational Medicine, Department of Community Medicine, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand; 2Unit of Respiratory and Critical Care, Department of Medicine, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Background Respirable crystalline silica (RCS) exposure among cottage industrial results in rising silicosis case. Therefore medical surveillance remains crucial. Recently FEV1 decline has been established as a surveillance tool.

Objective To explore the relationship between occupational RCS exposure and FEV1 decline among sand-stone workers who had ILO chest radiographs profusion CAG ≤1/1.

Material and method This study was designed as a descriptive study. The participants were sand-stone workers and non-occupational RCS exposure (n=139) who had an ILO chest radiographs profusion CAG ≤1/1. FEV1 was measured using follow-up FVC manoeuvre spirometry testing. History of work, duration of exposure and other related issues were obtained through questionnaire interviews.

Result The majority of participants were female, non smokers and no previous respiratory diseases. Mean of FEV1 decline was found higher in the high RCS exposure group (118.6 ±137.7 ml) as compared to non-occupational RCS exposure group (median 45 ml, IQR 100 ml). When subgroup of non smokers considered, being classified into high exposure was found to have the highest FEV1 decline (99.3 ml ±129.9 ml.). In addition, the highest proportion of participants who had FEV1 decline >100 ml revealed in the high RCS exposure group (19.6%) respectively .

Conclusion Intensity of RCS exposure strongly related to FEV1 decline. FEV1 decline more than 100 ml per year is appropriate to be used as a medical screening for RCS exposure and the effect could be found as early as six month exposure.

Specific Occupations

0233 PHYSICAL AND MENTAL HEALTH OF NON-PROFESSIONAL EMERGENCY RESPONDER IN A HEALTHCARE INSTITUTION

Lim Dwee Wee*, Josephlim Suan Seng, Laytin Lee. Occupational Health Services, Tan Tock Seng Hospital, Singapore, Singapore

Conclusion Farmworkers, who exceed 90 min a day in moderate/vigorous activity and/or irrigators, are at higher risk of HRIs. These workers may need closer monitoring for their safety.
Abstracts

Introduction Health of emergency responders is often overlooked. We aim to study the physical and mental health of non-professional emergency responders in a healthcare institution.

Methods This cross-sectional study used data from medical examination required for employees attending the Emergency Responder Course. The physician-administered questionnaire consisted of: demographics, medical history and lifestyle practices (smoking, alcohol and exercise). Physical examination included weight, height and blood pressure. Indirect standardisation method was used to calculate the standardised prevalence ratio (SPR) to compare with the results from the National Health Survey 2010, adjusted for age, ethnicity and gender. Kessler Psychological Distress Scale (K10) was dichotomized to assess for psychological distress. Prevalence risk ratio was used to explore the association between physical and mental health.

Results There were a total of 65 participants, with mean age of 49.4 years. Crude prevalence for diabetes, hypertension, dyslipidemia, overweight and smoking were 18.5%, 23.1%, 27.7%, 67.7% and 26.7% respectively. 41.7% of the 12 diabetics had HbA1C >7.5% and blood pressure of 66.7% of hypertensive participants were uncontrolled. Mean BMI was 26.9 kg/m2. SPR for dyslipidemia and overweight were 1.14 and 1.39 respectively. SPR for other chronic diseases ranged from 0.76–0.89). 11 (16.9%) had abnormal K-10 score. Hypertension was associated with abnormal K-10 score (Prevalence Risk Ratio 4.0, 95% CI 1.41–11.3).

Conclusion Despite possibility of healthy worker effect, there is a high prevalence of overweight and dyslipidemia among emergency responders compared to the national population. Interventions are needed to safeguard overall health of emergency responders.

Oral Presentation

Developing Countries

0234 OCCUPATIONAL EXPOSURE TO N-HEXANE IS ASSOCIATED WITH REDUCED FSH LEVELS AND ALSO WITH PROLONGED MENSTRUAL CYCLES IN MEXICAN WORKERS OF REPRODUCTIVE AGE

Liliana Ruiz-García1, Giovanni Battista Bartolucci2, Fabiola Salamon2, Mariella Carvier1, Juan M Malacara-Hernández1, Nlece Figueroa-Vega1, Octavio Jiménez-Garza1. 1Universidad de Guanajuato, Departamento de Ciencias Médicas, León/Guanajuato, Mexico; 2Padua University, Cardiologic, Thoracic and Vascular Science Department, Padua/Veneto, Italy; 3Univerdidad de Guanajuato, Departamento de Enfermería y Obstetricia, León/Guanajuato, Mexico

Introduction Former studies in rodents and cell lines have demonstrated ovarian toxicity caused by n-hexane and/or 2,5-hexanedione (2,5HID). In women occupationally exposed to solvents, variables “menstrual cycle period” and “time for getting pregnant” have been longer compared with controls, without identifying a compound responsible for those effects.

Material and methods We studied a group of Mexican women labouring in a shoe Factory (n=32). Individual environmental levels for seven compounds, included n-hexane, were measured. Also, urinary 2,5HID and seric FSH and anti-Müllerian hormone (AMH) as potential biomarkers of ovarian toxicity, in addition to a gyneco-obstetric history were obtained. We performed all tests and questionnaires in a reference group as well (n=32).

Results Mean exposure levels to n-hexane (49.2±39.6 mg/m3) and toluene (30.8±24.5 mg/m3) were the highest observed. There were no significant differences in serum FSH and AMH concentrations between groups (p=0.05). Exposed group showed prolonged menstrual cycles (p=0.007) and augmented time for getting pregnant compared with controls (p=0.007). Also in the exposed group, significant correlations were observed between FSH levels and n-hexane (r=−0.34, p=0.028) as well as FSH and 2,5HID (r=−0.33, p=0.029).

Conclusions n-hexane exposure may be responsible for a prolonged menstrual cycle. As judged by the correlations between FSH with n-hexane and 2,5HID this affection could be in the endocrine pathway rather than in the ovary itself. n-hexane could act as endocrine disruptor in women of reproductive age.

Oral Presentation

Disease Surveillance

0235 FRAMEWORK TO MATCH EXPOSURE AND HEALTH OUTCOMES TO BUILD HEALTH MANAGEMENT SYSTEM FOR CONSTRUCTION WORKERS IN KOREA

Hyunwoo Choi*, Dongmug Kang, Jongeun Kim. Pusan National University Yangsan Hospital, Yangsan, Republic of Korea

Background Majority of construction workers are daily workers who move into many places frequently. Because of this characteristic of construction workers, it is difficult to monitor their exposure status and manage health including periodic health check-up. Therefore, there is a need to establish a health management system, which includes method to assess exposure and health status.

Methods Identification data for individual will be gathered based on the database of the Construction Workers Mutual Aid Association(5 million registered) and the Korean Construction Workers Union database(7000 registered). Those databases have present job title and duration. Since the database do not have exact past exposure data, questionnaire using mobile and web survey will be considered. Main interest of exposures are asbestos and silica using Korean JEM. Major health outcomes will be asbestosis, chronic obstructive pulmonary disease, lung cancer. In addition, other diseases including musculo-skeletal disorders can be the other outcomes. Health outcomes will be recognised by the data of the National Health Insurance data by matching social security numbers whose were acquired from the exposure database.

Results This is in the beginning of the study. The detailed study design will be formed in the first year(2017). In 2018, preliminary analysis with matching of JEM and health outcomes in individual level will be given. Health management system and prospective cohort follow-up will be conducted after 2019. In the presentation, detailed study design, data-