0087 LONG-TERM DAY-AND-NIGHT ROTATING SHIFT WORK POSES A BARRIER AGAINST THE NORMALISATION OF LIVER FUNCTION

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Objectives To evaluate the impact of day-and-night rotating shift work (RSW) on liver health, we analysed the association between long term RSW exposure and the normalisation of plasma alanine transaminase (ALT) levels over a five-year period.
Method The data from physical examinations, blood tests, abdominal sonographic examinations, personal histories, and occupational records were collected from a cohort of workers in a semiconductor manufacturing company. The sample population was divided into three subgroups for analysis: persistent daytime workers, workers exposed intermittently to RSW (i-RSW), and exposed to persistent RSW (p-RSW).
Results Records were analysed for 1196 male workers with an initial mean age of 32.5 years (SD 6.0 years), of whom 821 were identified as rotating shift workers, including 374 i-RSW and 447 p-RSW workers. At the beginning of the follow-up, 275 were found to have elevated ALT (e-ALT): 25.1% day-time workers, 23.0% i-RSW workers and 21.3% p-RSW workers. Of those with e-ALT at the beginning, 101 workers showed normalised serum ALT levels at the end of five-year follow-up: 10.7% of day-time workers, 8.6% of i-RSW workers, and 6.5% of p-RSW workers; P = 0.016). By performing multivariate logistic regression analyses, and comparing with the persistent daytime co-workers, after controlling for confounding variables, analysis indicated that the workers exposed to p-RSW were 46% less likely (OR, 0.54; 95% CI, 0.30–0.95; P = 0.03) to attain normal ALT levels within a five-year interval.
Conclusions Persistent day-and-night RSW pose a vigorous obstacle to the normalisation of e-ALT among workers with pre-exing abnormal liver function.

0089 RECOVERY FROM MENTAL CONDITION: IS IT DIFFERENT BETWEEN TBI/NON-TBI

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Objectives This study aimed to determine the rates of psychological symptoms among those with traumatic brain injury (TBI) and with non-TBI at 3 months and 12 months after occupational injury and to examine the change in psychological status over time.
Method Our study candidates were injured workers in Taiwan who were hospitalised for 3 days or longer and received hospitalisation benefits from the Labour Insurance. A self-reported questionnaire including Brief Symptom Rating Scale (BSRS-50) and Post-traumatic Symptom Checklist (PTSC) was sent to workers at 3 months and 12 months.
Results Among 853 injured workers who completed the questionnaire at 3 and 12 months, regarding to the severity of BSRS score, 7.8% of those with TBI had recovered at 12 months, comparing with 8.1% in those with non-TBI. On the other hand, approximately11.6% of those with TBI had recovered from post-traumatic stress symptoms at 12 months, comparing with 9.7% among those with non-TBI. Injured workers with TBI had lower rate of recovery from psychological symptoms, comparing with non-TBI.
Conclusions A significant proportion of victims with TBI and non-TBI suffered psychological symptoms after injury. The identification and treatment of psychological symptoms are important for optimal adaptation after traumatic injury.

0098 OCCUPATIONAL DEAFNESS DUE TO CO-EXPOSURE TO NOISE AND OTOTOXIC AGENTS

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Objectives In order to estimate the hearing impairment in occupational environment due to the co-exposure to noise and solvents, we have undertaken a cross-sectional study to evaluating the prevalence of hearing loss due the co-exposure to both solvents and noise.
Method We recruited 144 workers, working in electronic materials manufacturing plant, one group is exposed to solvents alone, and the other one exposed to both noise and solvents. In another hand, we followed two other groups in a construction company of farm implements. 136 workers exposed to noise, 96 administrative workers none exposed. The data were collected by means of questionnaire and of an introductory tonal audiometry between 0,125 and 8 KHz
Results The prevalence of hearing loss of more 20dB in the group exposed to the noise and solvents was mush greater (57. 8%) than that of the noise alone (35. 3%), and that of administrative workers (27.7%) (P < 0.0001).

Multivariate logistic regression analysis showed that the solvents and noise group had an estimated risk for hearing loss >20 dB about 4.4 times higher than that of the noise group.

Hearing impairment was greater for speech frequency than for high frequency.
Conclusions Our results suggest that solvents increase potentially the hearing loss in a noisy environment, with a higher impact on the speech frequencies.

0099 CHANGES IN VENTILATORY AND HAEMODYNAMIC PARAMETERS DURING EXPOSURE TO ULTRAFINE PARTICLES IN A MANUFACTURING FARM MACHINERY

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Objectives To evaluate the influence of occupational exposure to ultrafine particles on cardiopulmonary parameters.

Method Changes in ventilatory and haemodynamic parameters during occupational exposure to ultrafine particles summers studied using a survey-type retrospective cohort exposed unexposed conducted in a company producing agricultural equipment for a period of five month period from January 1 to May 30, 2013 in 139 subjects, including 107 exposed men and 3 unexposed.

The survey consisted of a questionnaire (WHO), a complete physical examination with measurement of blood pressure before and after the job, a spirometer before and after the job.

Results 18.7% were presented, a type of respiratory symptoms in chronic bronchitis against only 6.3% of non-exposed with a statistically significant difference (P = . 04).

The prevalence of chronic bronchitis was significantly higher in smokers than in nonsmokers with 23.3% against 7.6% respectively. (P = . 01).

The papers have a higher incidence of lung disease than unexposed with 83.2% of restrictive lung disease after exposure in exposed against 78.1% in the unexposed.

Smokers with normal spirometry is less than non-smokers before and after exposure with the following frequencies after exposure: 12.1% in non-smokers against only 4.1% in smokers.

On haemodynamic parameters was noticed an increase in TAP (47.87 mmHg), FC (76.16 mm Hg) after exposure in exposed.

Conclusions Our results have demonstrated the harmful effects of ultrafine particles on changes in ventilatory and haemodynamic parameters.

0100 SEVERITY OF ILLNESS ASSOCIATED WITH WATER RECREATION

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Objectives We evaluated the severity of illness among those engaging in limited-contact water recreation such as boating, fishing, kayaking, and rowing.

Method Data were obtained from a cohort study which assessed the development of illness following water recreation. Disease severity was defined as symptom-days, the total number of days with symptoms related to gastrointestinal illness, respiratory illness, or eye, ear, and skin symptoms. Severity was evaluated in association with the degree of water exposure. Analysis included logistic regression and G-computation.

Results 11 297 participants completed the cohort study, of which 2301 developed symptoms related to gastrointestinal illness, respiratory illness, or eye, ear, or skin infection. When evaluating both ill and healthy participants who participated in water recreation, total symptom-days ranged from 0–67, and exhibited a right-skewed distribution. When dichotomized at the 90th percentile, there was a crude relative risk (RR) of 1.47 (1.27–1.72) for those getting their face wet during water recreation, and a RR of 1.65 (1.28–2.12) for those indicating that they swallowed water during water recreation.

Conclusions Increased water exposure, resulting in getting the face wet, or swallowing water is related to increased disease severity among water recreators. Further analysis is necessary to determine if any covariates such as age, race/ethnicity, gender, or previous comorbidities modify or confound the relationship between water exposure and disease severity.

0101 WORK HOURS, JOB STRAIN, AND OCCUPATION WITH ENDOTHELIAL FUNCTION: THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS (MESA)

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Objectives To investigate associations of work hours, job control, job demands, job strain, and occupational category with endothelial function, a predictor of cardiovascular disease (CVD).

Method Currently employed participants free of CVD (n = 1499; 55.5% men; 62% non-white) of the Multi-Ethnic Study of Atherosclerosis provided information on work hours, job decision latitude, and job demands. Responses to current occupation were coded using the Census 2000 Occupational Codes; codes were collapsed to provide four occupational categories. Brachial artery flow-mediated dilation (FMD), a validated measure of endothelial function, was obtained using high-resolution ultrasound. Mean values of FMD, expressed as percent change in brachial artery diameter, were examined across categories of work hours (<40, 40, 41–49, ≥50) and the other exposures using ANOVA/ANCOVA.

Results Occupational category was significantly associated with FMD overall, with Blue-collar workers showing the lowest mean values after adjustment for age, gender, race/ethnicity, education, waist circumference, total and HDL cholesterol, body mass index, systolic and diastolic blood pressure, physical activity, smoking status, and pack-years of smoking: Management/Professional = 4.96 ± 0.22%; Sales/Office = 5.06 ± 0.27%; Services = 4.70 ± 0.29%; Blue-collar workers = 4.18 ± 0.27% (adjusted p = 0.001). There was evidence of effect modification between occupational category and FMD by gender (p = 0.031) such that in stratified analyses, significant associations were observed among women (adjusted p = 0.002) but not men (adjusted p = 0.098). None of the other work exposures were significantly associated with FMD.

Conclusions Blue-collar workers had decreased endothelial function compared to other workers; potential reasons should be examined in future studies. Decreased endothelial function may reflect a biological mechanism explaining occupational differences in CVD.

0102 A RETROSPECTIVE COHORT MORTALITY STUDY OF US PHOSPHATE INDUSTRY WORKERS: AN UPDATE

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