

Poster Presentation

Working Conditions

0054 THE RELATIONSHIP BETWEEN ON-CALL WORK AND HEALTH PROBLEM AND INJURY AMONG KOREAN WORKERS

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Objective In case of on-call work, it is mixed with day-duty and night-duty, so that workers may have to work anytime of the day. This study aimed to understand the relations between Korean workers' on-call work, health problem, and injury.

Methods Using the 3rd Korean Working Conditions Survey in 2011, this study targeted 29 246 paid workers working for more than a year. Conducting the logistic regression analysis of on-call work and health problem based on the surveyed data, the personal/occupational characteristics, working environment, and job stress were controlled.

Results In case of on-call work, it showed higher odds ratio like physical health problems (OR, 1.33; 95% CI 1.22–1.44), psychological health problems (OR, 1.31; 95% CI 1.08–1.60), and injury (OR, 2.76; 95% CI 2.26–3.37). In the results of analysing the detailed health problems, workers on-call work showed higher odds ratio of hearing problems (OR, 2.06; 95% CI 1.63–2.62), skin problems (OR, 1.71; 95% CI 1.38–2.12), back pain (OR, 1.22; 95% CI 1.08–1.38), muscular pain in shoulders, neck, and upper limbs (OR, 1.23; 95% CI 1.12–1.34), muscular pain in lower limbs (OR, 1.27; 95% CI 1.15–1.40), headache and eyestrain (OR, 1.46; 95% CI 1.32–1.60), abdominal pain (OR, 1.37; 95% CI 1.02–1.85), depression or anxiety (OR, 1.43; 95% CI 1.07–1.93), overall fatigue (OR, 1.36; 95% CI 1.24–1.49), insomnia or sleep difficulties (OR, 1.41; 95% CI 1.13–1.76).

Discussion In the results of this study, on-call work was related to health problems and injury. Additional study should be conducted to understand the correlations in the future.

Poster Presentation

Intervention Studies

0055 THE HEALTH RISKS OF OCCUPATIONAL EXPOSURE TO N-HEXANE IN PRINTING INDUSTRY

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Objective To evaluate the risks of occupational exposure to n-hexane in printing industry.

Methods 76 printing factories using n-hexane were investigated. The concentrations of n-hexane in workplaces were tested. The medical examination was carried out for 179 exposed workers and 208 controls. The concentrations of 2,5-hexanedione in urine were tested among 162 exposed workers and 54 controls. The neural electromyography (EMG) examination was performed on 28 cases exposed to n-hexane for more than 4 years.

Results The solvents containing n-hexane are used to clean the printing machines. The concentration of n-hexane in the air of the workplaces was 1.5–1553.5 (median=178.2) mg/m³ and 17.59% of them exceeded the occupational exposure limit (OEL). The concentration of n-hexane for exposed individuals was 39–215 mg/m³ and 66.67% of them exceeded the OEL.

The results of medical examination showed that the occurrence of conjunctiva congestion (10.65%)*, tremor of fingers (10.06%)* and tendon hyporeflexia (13.41%)** among the exposed workers were significantly higher than that of the controls (4.81%, 6.25% and 4.33%, respectively) (*p<0.05, **p<0.01). The concentrations of 2,5-hexanedione in urine were 0.25–15.6 (1.78±2.98)mg/L among the exposed workers and 11.73% of them exceeded 5 mg/L. The EMG showed that 2 cases suffer from a slight peripheral nerve injury.

Conclusion The concentration of n-hexane in workplaces exceeds the OEL and the abnormal results of medical examinations performed on the exposed workers indicate health risks in the printing industry. These risks are caused by manual labour, overtime work, lack of harmful chemical removal devices and PPE.

Poster Presentation

Intervention Studies

0056 INVESTIGATION ON OCCUPATIONAL EXPOSURE TO NON-IONISING RADIATION IN PHYSIOTHERAPY WORKPLACES

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Objective To understand the occupational exposure to non-ionising radiation in physiotherapy workplaces.

Methods An investigation was conducted in 16 physiotherapy agencies used non-ionising radiation physiotherapy instruments. The ultra-high-frequency radiation, high-frequency radiation and microwave were measured in the points of the head, chest and abdomen. The laser was measured on skin.

Results The intensity of ultra-high-frequency radiation produced by 17 ultra-short wave therapeutic apparatus were 0.001–0.306 (median=0.085)mW/cm², 0.008–4.225 (median=0.102)mW/cm² and 0.011–2.701 (median=0.292) mW/cm² in the point of the head, chest and abdomen, and 70.6%, 47.1% and 17.64% meet the occupational exposure limits (OELs) respectively. The high-frequency radiation in the point of chest (26.7 V/m) and abdomen (40.8 V/m) produced by 1 of the 4 high frequency thermotherapy instruments respectively exceed the OELs. The microwave (0.001–4.668 mW/cm²) of 18 microwave therapeutic apparatus meets the OELs in all points mentioned above. The laser of 12 laser therapeutic apparatus were <0.01×10⁻⁴–0.13×10⁻⁴ W/cm² in wavelength range 400–1400 nm on the skin, all of them meeting the OELs.

Conclusion The physical therapists are exposed to occupational hazard factors such as ultra-high-frequency radiation, high-frequency radiation, microwave and laser in the workplace. The ultra-high-frequency radiation and high-frequency radiation that exceed the OELs in some measurement points indicate the risks currently in physiotherapy workplaces. It is necessary