THE RELATIONSHIP BETWEEN ON-CALL WORK AND INVESTIGATION ON OCCUPATIONAL EXPOSURE TO THE HEALTH RISKS OF OCCUPATIONAL EXPOSURE TO N-HEXANE IN PRINTING INDUSTRIES
Jae Bum Park, Chulin Baek, School of Medicine, Ajou University, Suwon, Gyeonggi-do, Republic of Korea; Ajou University Hospital, Suwon, Gyeonggi-do, Republic of Korea
10.1136/oemed-2017-104636.39

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 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.

THE HEALTH RISKS OF OCCUPATIONAL EXPOSURE TO N-HEXANE IN PRINTING INDUSTRIES
He Jia-Xi, Shenzhen Centre for Occupational Disease Prevention and Treatment, Shenzhen, Guangdong, China
10.1136/oemed-2017-104636.40

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 208 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 (10.6%)*, tendon 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.

INVESTIGATION ON OCCUPATIONAL EXPOSURE TO NON-IONISING RADIATION IN PHYSIOTHERAPY WORKPLACES
Yang Jing, He Jia-Xi, Shenzhen Centre for Occupational Disease Prevention and Treatment, Shenzhen, Guangdong, China
10.1136/oemed-2017-104636.41

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.