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Preventive guideline of brain resilience improvement for firefighters: Developing process

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Occupational hazards of firefighters include frequent exposure to toxic substances in fire events and the development of traumatic stress in life-threatening situations. These factors put them at higher risk of developing neuropsychiatric diseases. However, studies on developing preventive guidelines for firefighters' neuropsychiatric problems are insufficient in Republic of Korea. Therefore, we aimed to create a guideline for improving brain resilience to protect firefighters' neuropsychiatric health. An internal expert group was established for the development of a guideline for preventing firefighters' neuropsychiatric diseases. The group consisted of five people who were specialists in the fields of occupational and environmental medicine, neuroscience and psychiatry. The following concrete steps were taken to develop the guideline for firefighters. Firstly, specific topics and directions were set up for the preparation of the guideline. Secondly, major health outcomes and exposures with a focus on neuropsychiatric diseases in firefighters were selected after a literature review. Finally, the structure and organization of the contents to be included in the guideline were discussed. A thorough review of the literature indicates that firefighters are most commonly exposed to organic compounds (carbon monoxide, benzene, toluene, poly-aromatic hydrocarbon), heavy metals (lead, manganese) and dusts (fine particles). Furthermore, depressive disorder, sleep disorder, dementia and Parkinson's disease were included as main outcomes. The guideline describes the occupational factors that may affect the selected disease and explains the mechanism underlying disease progression or occurrence for each occupational factor. Finally, methods for preventing the selected diseases are described in detail, based on first, second and tertiary prevention strategies. This newly developed guideline will be produced in a simple and easy-to-understand method for firefighters who are at the forefront of emergency and fire services. Additionally, we made it possible to revise the guideline according to direct feedback from firefighters. This will help to improve brain resilience and to protect firefighters' neuropsychiatric health in Republic of Korea.

Recent Publications

1. Jia Ryu (2016) Two cases of methyl alcohol intoxication by sub-chronic inhalation and dermal exposure during aluminum CNC cutting in a small-sized subcontracted factory. *Ann Occup Environ Med.*; 28: 65.
2. Jia Ryu (2017) Firefighters and Posttraumatic Stress Disorder. *Korean J Biol Psychiatry*; 24(1): 10-18.

Biography

Jia Ryu is interested in occupational and environmental medicine, especially work-related stress and work-related psychiatric disorder.

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