

Abstract

Occupational health protection strategies for outdoor workers exposed to heat, cold, and fine particles

Objectives: The objective of this study was to suggest occupational health protection strategies for outdoor workers exposed to heat, cold, and fine particles.

Methods

- Literature review
- Estimation of industries and occupations with outdoor work
- Focused group interview
- Evaluation of temperature change using meteorological data
- Analysis of heat and cold-related diseases using surveillance and workers' compensation data
- Brain storming and discussion among professionals

Results

- Outdoor workers' health is protected by 'general duty clause' of Occupational Safety and Health Act without specific regulations in most European countries and USA. However, France, Canada, two states in USA, and China have specific regulations to prevent heat-related diseases.
- Focused group interview shows that most workplaces in construction, shipbuilding, and dock industries implemented their own measures to prevent heat-related diseases.
- WBGT is a useful index to evaluate the risk of heat stress and protect outdoor workers against heat-related diseases, because WBGT considers air temperature, relative humidity, air movement, radiant heat, clothes, and physical exertion. However, Korea is not yet prepared to use WBGT as a standard.
- Heat related diseases may be caused by susceptibility factors such as acclimation, age, and health status as well as climate factors and physical exertion. Thus, general measures to prevent heat-related

diseases should be implemented in workplace during summer season (June~mid September) rather than standard-dependent measures.

- Regulations on heat stress measures had better be included in Article 23 on safety measures of Occupational Safety and Health Act because heat or cold stress is not a constant hazard arising from workplace, but uncontrollable climate factors outside workplace.

Conclusion: For preventing heat-related diseases in outdoor work, general measures considering climate and susceptibility factors should be implemented during summer season.

Keywords : Outdoor work, heat, cold, fine particle, heat stroke, hypothermia