

RISK OF METABOLIC SYNDROME AMONG PEOPLE PARTICIPATED IN CLEAN-UP WORK 1 YEAR AFTER HEBEI SPIRIT OIL SPILL

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Background and Aims: Since many kinds of hazardous substances were released by oil spill accident, various potential health effects including cardiovascular and metabolic effect may have occurred. However, few studies have been conducted on the medium and long-term health effects of oil spill. We aimed to assess the risk of metabolic syndrome in people exposed to the spilled oil during clean-up work 1 year after the accident of Hebei Spirit oil spill in 2007, Taeon, Korea.

Methods: The study was carried out from February 2009 to August 2009. A total of 9,035 adults including 3,755 males and 5,280 females participated in the study. Health examination (height, weight, blood pressure, body mass index) and blood test (total cholesterol, Triglyceride, HDL, fasting blood sugar) were performed. The information of duration of the clean-up work, drinking, smoking, physical exercise, and health behavior were obtained by a questionnaire interview. The logistic regression model adjusted for age, gender, smoking history was used to estimate the risk of metabolic syndrome associated with the level of oil spill exposure.

Results: The prevalence of metabolic syndrome was 24.6% in the males and 26.8% in the females. High blood pressure showed the highest prevalence among the risk factors of metabolic syndrome (46.8%), followed by body mass index, hypertriglyceridemia, low HDL-cholesterol, and high fasting blood sugar level. High blood pressure, hypertriglyceridemia, and high fasting blood sugar level showed a higher prevalence in the males and at the ages of fifties and sixties. The metabolic syndrome prevalence was higher according to the increase of duration of the cleaning work. The risk of metabolic syndrome in people who participated in the clean-up work for more than 125 days, compared with people who did not participate in the cleaning work was significantly higher (OR=1.45, 95% CI=1.20-1.74), with a significant dose-response relationship for days of clean-up work (p-trend<0.001). Moreover, the risk of metabolic syndrome in people who reside in the region within 0.5 km from the coastline, compared with those who reside in the region far from the coastline by more than 2.5 km was significantly higher (OR=1.35, 95% CI=1.18-1.55), with a significant inverse trend with distance from coastline (p-trend<0.001).

Conclusions: This study showed that there was a significant association between exposure to oil spill during the clean-up work and the risk of metabolic syndrome with a dose-response manner.

References :

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