

EXPOSURE OF ENVIRONMENTAL POLLUTANTS IN GANGNEUNG AS A NON-INDUSTRIAL AREA IN KOREA

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Background and Aims: In order to investigate the relation between environmental pollution and the human health effect in large scale industrial complex regions, cohort studies have been launched since 2003.

The main purpose of this Gangneung study is to produce background data of a non-industrial area which can be compared with some large scale industrial complex regions, such as Ulsan, Sihwa, Banwol, Gwangyang, Yeosu, Pohang and Cheongju, Daesan industrial complexes.

Methods: In this Gangneung study, 1,007 local residents were recruited, and the framework of this study designed to evaluate and monitor health effects associated with low-level but long-term exposure to environmental pollutants. This survey has been performed based on identical questionnaires, medical checkup, allergen skin-prick test with 12 common allergens, sampling and chemical analysis basically. And the environmental pollutants including heavy metals (Pb, Cd, Hg, As) in blood and urine sample were analysed.

Results: The diagnosis prevalence and medical treatment prevalence of asthma were lower than industrial complex regions. But allergic rhinitis was higher. The allergen skin test prevalence was 26.0% and the most common allergen was dust mite (*D. pteronyssinus* 18.0% and *D. farinae* 17.3%). The concentration of heavy metals were 1.57 µg/dl for Pb in whole blood, 0.82 µg/g-creatinine for Cd, 0.98 µg/g-creatinine for Hg and 15.78 µg/g-creatinine for As(3+, 5+, MMA, DMA) in urine. The concentration of Pb-B was lower than, Cd-U and Hg-U were similar with, and As-U in Gangneung was higher than those in large scale industrial complex regions, Korea.

In the analysis of 11 kinds of VOCs, Vinyl Chloride, 1,3-Butadiene, Dichloroethylene were not detected. Anyway, the detection rate in the others was more than 70% except Chloroform(49.7%) and Trichloroethylene(19.0%). In 16 kinds of PAHs, 10 kinds showed more than 80% in detection rate and 0.01-0.21 µg/L in concentration, on the other hand, Acenaphthylene and Acenaphthene were not detected. In 4 kinds of PCBs, it showed 52-78% of detection rate and 0.003-0.005 µg/L in concentration. The level of organic compounds was similar with other large scale industrial complex regions, Korea.

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