

# HIGHER URINARY 1-HYDROXYPYRENE LEVELS FOR RESIDENTS LIVING CLOSER TO A PETROCHEMICAL COMPLEX

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**Background and Aims:** This study measured urinary 1-hydroxypyrene as a biomarker to assess people's exposure to polycyclic aromatic hydrocarbons (PAHs) emitted from a petrochemical complex.

**Methods:** We defined the downwind areas within 10 km radius of the petrochemical complex as the exposed zone and the upwind areas of 25 km away from the complex as reference zone. Residents who have lived in the chosen zones for more than 5 years were randomly selected as study subjects by three age groups, i.e. 6-15 years, 35-60 years, and 61 years and older. Spot urine samples were collected and analyzed for 1-hydroxypyrene by a HPLC-florescent method.

**Results:** Urinary 1-hydroxypyrene concentrations of 328 subjects in the exposed zone ( $0.20 \pm 0.36 \bullet \text{mol/mol-creatinine}$ ) were significantly higher than those of 189 subjects in the reference zone ( $0.08 \pm 0.06 \bullet \text{mol/mol-creatinine}$ ) by t-test. Combined, urinary 1-hydroxypyrene concentrations in 6-15 years age group ( $0.11 \pm 0.16 \bullet \text{mol/mol-creatinine}$ ) were statistically lower than those in the other 2 age groups ( $0.16 \pm 0.30$  and  $0.21 \pm 0.39 \bullet \text{mol/mol-creatinine}$ ) by ANOVA-test. And 1-hydroxypyrene concentrations were higher in residents who exposed to ETS or incense, but were not different by gender. The zone effect on urinary 1-hydroxypyrene levels remained significant after adjusting for covariates of age, sex, smoking, ETS, grilled food consuming and incenses burning in regression models.

**Conclusions:** The result of this study showed that residents' 1-hydroxypyrene concentrations were significantly related to zone effect, indicating their proximity to a large industrial point source of PAHs.