

## **S01-04 Prenatal low levels mercury exposure on infant development: a prospective study in Zhoushan Islands, China**

**Chonghuai Yan<sup>1</sup>, Yu Gao<sup>1</sup>, Yu Wang<sup>1</sup>, Hong Zhang<sup>1</sup>, Xiaodan Yu<sup>1</sup>, Jian Xu<sup>1</sup>, Xiaoming Shen<sup>1</sup>**

**1. Division of Environmental Science Shanghai, XinHua Hospital affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China**

*E-mail: yanch@shkeylab-ceh.org*

Objective. To explore the relationship between prenatal mercury exposure and infant neuro-developmental outcomes in Zhoushan cohort. Material and methods. 408 mother-infant pairs were enrolled in the cohort of Zhoushan Islands. Prenatal mercury exposure was determined by measuring cord blood mercury (CBHg, Range 1.34-18.34 $\mu$ g/L). Based on their CBHg, children were divided into two groups: 80 in low mercury group (LG, CBHgP80, 8.09 $\mu$ g/L). Children were followed up at 3 (n=149) and 12 (n=123) months mos. of age with evaluated BSID, hair mercury and questionnaire. The association between CBHg concentrations and neurodevelopmental outcomes at 3 and 12 months of age was examined by multiple regression analysis with adjustment for confounding variables. Results. The average hair mercury levels were 1058.71 $\pm$ 69.58(LG), 1903.06 $\pm$ 139.37 $\mu$ g/kg(HG) of 3-month-infant and 906.05 $\pm$ 110.26(LG), 1512.41 $\pm$ 93.85 $\mu$ g/kg(HG) of 12-month-infant. The hair mercury of 12-month were lower than that of 3-month significantly in both group. MDI of 3-month-infant were 109.01 $\pm$ 4.16 of LG, 108.32 $\pm$ 4.23 of HG, PDI were 99.91 $\pm$ 3.28 of LG, and 98.71 $\pm$ 5.21 of HG. MDI of 12-month-infant were 110.60 $\pm$ 4.29 of LG, 109.56 $\pm$ 4.29 of HG; PDI were 104.06 $\pm$ 3.75, and 101.70 $\pm$ 3.59 of HG. There were no significant differences of MDI and PDI between the two groups in both ages. At 3 months, high risk factors for MDI were hair mercury of 3 months and head circumference; and those for PDI were hair mercury of 3 months and gender. At 12 months, the high risk factors for MDI scores were hemoglobin of 3 months, age when children stood up and those for PDI were age when children stood up, average times of fish dinners of mother and hemoglobin of 12 months. Conclusions. The hair mercury level was significantly related with CBHg. The mercury exposure level of 12-month-infant was lower than that of 3-month-infant. **Prenatal low level mercury exposure had no significantly impacts on infants' development in Zhoushan cohort.**

**Keywords:** Mercury; Development; Toxicity; Prenatal exposure; Infant