Total Mercury Levels of Maternal Hair in Kagoshima

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To evaluate methylmercury exposure, we examined 201 mothers who delivered babies in three hospitals in Kagoshima Prefecture in 1992–1995. Every mother answered a questionnaire and provided a hair sample. Mercury concentrations were determined using cold vapor atomic absorption spectrometry. Baby development information was acquired up to 1.5 years old in the follow-up. In our research, the geometric mean of maternal hair mercury concentration was 3.24 ppm, which was higher than the mean mercury concentration in a study conducted elsewhere in 1992–1993 (males and females 2.98 ppm and 2.02 ppm, respectively). Maternal hair mercury concentrations had significant positive relationship with fish consumption levels. The average annual fish consumption was 43.8 kg, which was 9.5–36.8% higher than the national average level (32–40 kg, National Nutrition Survey in 1995). Among our study subjects, six mothers (3%) had hair total mercury levels exceeding 10 ppm, but we could not monitor them. Of the 40 mothers (19.9%) with hair total mercury levels of 5–10 ppm, 21 mothers were monitored up to at least 18 months after child birth to examine the effect of elevated mercury levels on the development of their children. No significant detrimental effects were observed. Multiple regression analysis did not show any significant relationship between the age at which babies started walking and maternal hair mercury level, after adjustment for age, gestational age and area.