SEXUAL DIFFERENCES IN THE ACCUMULATION OF MERCURY IN THE INFANT POPULATION OF MENORCA

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Background and Aims: Mercury can cause severe neurological damage to children (Grandjean *et al*., 1997). Humans are exposed to mercury basically through fish consumption. This research focuses on the presence of mercury in the infant population of Menorca, in the Western Mediterranean area, whose inhabitants are usual fish and seafood eaters.
Methods: The research is based on 198 hair samples of four-year old children from the Menorca island collected within the INMA study (Ribas-Fito *et al*., 2006). Determination of total mercury (tHg) in hair was performed using inductively coupled plasma mass spectrometry.
Results: The mean tHg in hair of children from Menorca was 1.3 µg/g. Girls had higher tHg levels than males (1.4 vs. 1.1 µg/g, statistically significant). The observed differences were also maintained when controlling for diet (fish consumption) and breastfeeding. Regarding fish intake, mean tHg values among frequent fish consumers (more than three times per week) were almost three-fold higher than among non-consumers (1.6 vs. 0.58 µg/g).
These results have been compared with those of other organic persistent pollutants, such as organochlorine compounds (OCs). As described by Grimalt *et al.* (2010), female children could have a higher retention capacity for the incorporation of OCs through breastfeeding. Mercury could also have a sexual accumulation pattern similar to OCs, but in this case, fish consumption is the main ingestion route. In any case, comparison with gender differences observed from other cohorts (Batista *et al*., 1996; Kim *et al*., 2008) shows that more research is needed to identify the cause of this differential accumulation.
Conclusions: The present study identifies a case of significant differential accumulation of tHg in children, by gender. The main causes of this difference are explored considering dietary habits (mainly fish intake) and breastfeeding. Gender differences in the accumulation of other persistent pollutants, such as organochlorine compounds, in the same population are also considered.