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Methyl mercury exposure of pregnant women consuming fish in French western coastal area (Coral study).

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Objective: The objective was to assess the exposure of women to Methylmercury during their pregnancy.

Methodology: A group of 161 pregnant women was enrolled in Nantes, a large city of the western French coast, known to have a high proportion of fish consumers. A three days dietary record, a food frequency questionnaire focusing on the consumption of various fish species and a hair sampling were performed for each women both at 12 and 32 weeks of pregnancy. The amounts of fish consumed were combined with the average concentrations for MeHg in the corresponding fish species.

Results: The resulting average dietary exposure at 12 weeks of pregnancy is 0.60 ± 0.75 µg/kg body weight (95th percentile: 1.91 µg/kg bw). At 32 weeks of pregnancy the average dietary exposure is 0.70 ± 0.78 µg/kg body weight (95th percentile: 1.68 µg/kg bw). At the same time, the concentration of MeHg in hairs ranges from 0.19 to 3.66 µg/g (95th percentile: 1.69 µg/g) and from 0.13 to 2.88 µg/g (95th percentile: 1.97 µg/g) respectively at 12 and 32 weeks of pregnancy.

Implications: Those results confirm on the one hand that, based on fish consumption combined with MeHg concentration in fish, about 5 to 10 % of French pregnant women consuming fish are exposed above the PTWI of 1.6 µg/kg bw. On the other hand, we observe that MeHg in hairs is at the maximum around 3 µg/g which is about 4 times lower than the BMDL of 14 µg/g in humans observed in the Faroes study.