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Neurophysiological measures of developmental and chronic exposure to methylmercury

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Background: Neurophysiological methods have been applied to detect subclinical changes associated with exposures to developmental neurotoxicant in asymptomatic children (Table 1). A review of neurophysiological findings in methylmercury neurotoxicity in children and adolescents suggested differences between the effects of prenatal and postnatal exposures. We therefore examined a group of Faroese members of the whaling society with high life-time exposure to methylmercury.

Methodology: Brainstem auditory evoked potential (BAEP) latencies were examined in 50 male whalers aged 21-81 (mean 56) years, who donated a hair sample for mercury analysis six years ago. Mercury in hair, toenail, and whole blood was also measured at the time of the BAEP examination.

Results: Delays in the peak III and V latencies of the BAEP were significantly related to the previous hair-mercury concentrations (range 3.4 - 43.7 microgram/g; median 13.2 microgram/g). Also, these significant, but weak, associations were seen after adjusting for age, thus indicating a possible adverse effect of recent exposures.

Implications: Although the sample size of this pilot study was small and it is probable that these whalers had been exposed to methylmercury prenatally, it adds to the evidence that delays in evoked potentials may function as objective measures of methylmercury neurotoxicity.