



EPIDEMIOLOGY

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FLUORIDE EXPOSURE ON REACTION TIME AND VISUOSPATIAL ORGANIZATION IN CHILDREN

[2000 Annual Conference of the ISEE]

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INFLUENCE OF FLUORIDE EXPOSURE ON REACTION TIME AND VISUOSPATIAL ORGANIZATION IN CHILDREN JAQUELINE CALDERON, MACHADO BLEENDA, NAVARRO MARIELENA, CARRIZALES LETICIA, ORTIZ MARIA DEOGRACIAS, DIAZ-BARRIGA F. University of North Caroline. EMail: Jaqueline.Calderon@sph.unc.edu

Fluoride exposure is an important public health problem in several Mexican states. In the city of San Luis Potosi, Mexico, above 90% of the children have some degree of dental fluorosis. The main source of exposure to fluoride is tap water. The objective of the study was to evaluate the influence of chronic exposure to fluoride on neuropsychological development in children. Sixty-one children aged 6 to 8 years were included. Fluoride concentrations in tap water ranged from 1.2 to 3 mg/L. Fluoride exposure was measured in urine samples by electrothermal ion selective method. Blood lead (PbB) was measured as indicator of lead exposure by atomic absorption spectrophotometry. Height for age index (HAI) was calculated as indicator of past nutritional status. Three test were used to evaluate the neuropsychological development: (1) Wechsler Intelligence Scale for Children Revised version for Mexico (WISC-RM), (2) Rey Osterreith-Complex Figure test and (3) Continuous Performance Test (CPT). Mean value of fluoride in urine was 4.3 mgF/g creatinine (1.6–10.8). Mean PbB value was 6.2 ug/dl(2.0–15.6). After controlling by significant confounders, urinary fluoride correlated positively with reaction time and inversely with the scores in visuospatial organization. IQ scores were not influenced by fluoride exposure. An increase in reaction time could affect the attention process, also the low scores in visuospatial organization could be affecting the reading and writing abilities in these children.

Accession Number: 00001648-200007000-00417

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Version: rel10.2.0, SourceID 1.11354.1.53