

# PRENATAL MOLYBDENUM EXPOSURE AND INFANT NEURODEVELOPMENT IN MEXICO

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**Background and Aims:** Molybdenum (Mo) is a naturally occurring element, considered an essential dietary nutrient in humans and animals. Information about its possible adverse health effects is scarce. Our aim was evaluate the association between prenatal Mo exposure and neurodevelopment of Mexican children, during the first 30 months of age.

**Methods:** In 2000-2009 we carried out a cohort study in the state of Morelos, Mexico with the objective to evaluate prenatal organochlorine exposure and child neurodevelopment. During pregnancy, each mother was monitored and interviewed about diet and health aspects related with her pregnancy evolution; from each we obtained a spot urine sample at least in one trimester. We evaluated Mental and Psychomotor indexes of the Bayley Scales for Infant Development from 1 to 30 months of age of children without perinatal complications. For this report, maternal Mo urine concentrations were determined by electrothermal atomic absorption spectrometry in a random subset (n=106). As potential confounders, we considered quality of the home environment, maternal IQ, birth weight, sex of child, and maternal lead levels. Separate generalized mixed effects models were used to estimate the effect of Mo exposure on mental and psychomotor neurodevelopment.

**Results:** Mo Geometrics mean ranged from 32.0 to 52.9  $\mu\text{g/L}$ ; significant higher levels were observed during the second trimester in comparison to first and third trimester ( $p < 0.05$ ). Doubling the Mo concentration during the 3<sup>rd</sup> trimester was associated with a significant reduction ( $\beta = -0.73$ ) in mental development. A similar change of Mo levels at 1<sup>st</sup> trimester was associated with significant decrease in psychomotor development ( $\beta = -0.85$ ).

**Conclusions:** This is the first report suggesting a negative association between prenatal Mo exposure and infant neurodevelopment. Mo levels observed are similar to those reported by CDC and a recent study with Mexican children. Further and larger studies are needed to confirm these findings.

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