Early-life exposure to lithium and boron from drinking water

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The transfer of lithium and boron from exposed mothers to fetuses and breast-fed infants was investigated in areas in northern Argentina and Chile with up to 700 ?g. lithium/L and 5-10. mg. boron/L in drinking water. Maternal and cord blood concentrations were strongly correlated and similar in size for both lithium (47 and 70 ?g/L, respectively) and boron (220 and 145 ?g/L, respectively). The first infant urine produced after birth contained the highest concentrations (up to 1700 ?g lithium/L and 14,000 ?g boron/L). Breast-milk contained 40 and 60% of maternal blood concentrations of lithium and boron, respectively (i.e. about 30 and 250 ?g/L, respectively, in high exposure areas), and infant urine concentrations decreased immediately after birth (120 ?g lithium/L and 920 ?g boron/L). We conclude that lithium and boron easily passed the placenta to the fetus, and that exclusively breast-fed infants seemed to have lower exposure than formula-fed infants.