

Maternal-Child Transfer of Essential and Toxic Elements through Breast Milk in a Mine-Waste Polluted Area

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Copyright © 2014 by Thieme Medical Publishers, Inc. Objective To determine the daily intake of essential micronutrients and toxic elements through breast milk in exclusive and nonexclusive breastfed infants living in an area with major mine tailing deposition (n = 24), compared with a control area (n = 11). Study Design The milk volume ingested by 2 to 4 and 4 to 6 month infants was measured by a stable isotopic method. Elements in milk, maternal and infant urine, and drinking water were measured by inductively coupled plasma mass spectrometry (ICP-MS). Results Similar breast milk volume and essential micronutrients intake in groups of exclusively breastfed infants, but more cadmium, boron, and lithium through breastfeeding in experimental area was found. This exposure was even higher in the nonexclusively breastfed infants, who also ingested more arsenic, boron, and lithium than exclusive breastfed infants. Conclusion The use of the deuterium and the ICP-MS methods made it possible to