Aluminum in Infant Formulas and in Breast Milk

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Aluminum (Al) is considered a toxic trace element. In 1985, Freundlich et al. (1) expressed concern that Al may accumulate in the brain of young infants with renal insufficiency. The authors speculated that the source of
Aluminum responsible for high Al concentration in the brain was infant formula. They found much higher Al concentrations in commercially available infant formulas ($\bar{x} = 242 \mu g/l$) than in breast milk ($\bar{x} = 4 \mu g/l$); however, the number of breast milk samples analyzed in that study was not reported, and no detailed information on the analytical procedure was given. Consequently, we compared Al concentrations of commercially available infant formulas ($n = 55$) from 17 European countries with that of pooled breast milk ($n = 10$) collected according to the recommendations given by Picciano (2). Samples were analyzed by ICP-OES 3250 ARL after wet ashing.

Aluminum concentrations (Fig. 1) in infant formulas corresponded to those reported in the literature (1,3,5) and were higher than in pooled breast milk. Aluminum in breast milk, however, was much higher than reported by Freundlich et al. (1). The reason for this discrepancy is not known. Most nursing mothers in our study received calcium and mineral supplements, which can be contaminated with Al. High Al intake therefore may have contributed to the high values of this study. More data on Al concentration in breast milk are needed for comparison.

REFERENCES