SELENIUM AND BREAST-FEEDING IN AUSTRALIA

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Selenium is important for normal growth and development. However, data on selenium in relation to infants in Australia are very limited. We report here some measurements on breast-feeding mothers and their infants.

Twenty healthy mothers from Brisbane, ranging in age from 17 to 38 (median 28) years, took part in the study. No formal dietary assessment was made, but informal discussion did not identify any unusual dietary pattern among them. Their healthy infants, who were aged between six and 12 weeks at the time of the study, were all fully breast-fed on demand: their weights and lengths were between the tenth and ninetieth percentiles of the Australian National Health and Medical Research Council growth charts.

From the mothers, we obtained a 10 ml blood sample, and 10 ml samples of fore- and hind-milk at a mid-morning breast-feed. Milk and blood samples were collected in acid-washed containers, and were stored at -20^{o}C until analysis. The selenium concentration in these samples was measured by neutron activation analysis.

Maternal selenium status was assessed from their blood selenium concentration. The mean blood selenium level (n = 18) was 101 (% S.D. 19) ng/g and the mean serum level 81 (% S.D. 15) ng/g (n = 20). We have not found any other reports of maternal blood selenium content at this stage of lactation. However, the serum values were lower than comparable values for lactating women from Japan and the USA, but similar to those from Finland (a low-selenium area) and the only other Australian study.

The breast milk selenium content, using the average of fore- and hind-milk for each mother, was 11.9 (% S.D. 3.5) ng/g (n = 12). These values were also fairly low by international standards, but not as low as in low-selenium regions, such as New Zealand or Scandinavia.

We measured 24-hour breast-milk intakes of the infants, using a modified test-weighing method that takes account of evaporative water losses during feeding (Woodward and Cumming, 1990). Mean intakes were 856 g, with S.D. 172 g (n = 17).

Combining milk selenium level and milk intake data for an infant allowed estimation of that infant's 24-hour selenium intake. Mean 24-h intake, based on the 10 infants for whom the necessary data were available, was 10.7 (%S.D. 4.1) μg, which is marginally above the present Australian R.D.I. of 10 μg for infants under six months. Our values are similar to comparable values in a recent American report, and higher than reported Finnish data.

WOODWARD, D.R.and CUMMING, F.J. (1990). J. Paediatr. Child Health 26: 347.

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