25-Hydroxycholecalciferol serum levels in breast-fed infants

Sir,

We read with interest the paper by Birkbeck and Scott.¹ Their Figure showed that maternal 25-OHCC levels were all higher than 10 µg/l. We did a similar study on 60 mothers and the cord blood and sera of the babies at age 1 month showed that levels of 25-OHCC were much lower in Turkey.

25-OHCC levels in maternal sera were 9.98 ± 7.59 µg/l. Mothers who delivered their babies in the winter had particularly low levels (6.87 ± 5.84 µg/l, < 10 µg/l in 37 mothers). Cord blood 25-OHCC levels (6.09 ± 4.14 µg/l, < 10 µg/l in 45) correlated with maternal levels, as pointed out by Birkbeck and Scott,¹ and were lower than the maternal values. Cord levels were even lower in babies born during the winter (4.3 ± 4.03 µg/l). 25-OHCC levels in 1-month-old babies were lower than cord values, again particularly in winter babies (2.6 ± 3.09 µg/l, < 10 µg/l in 27 babies).

These findings are similar to some of the findings of Birkbeck and Scott¹ in that the 25-OHCC level in cord blood was lower than the maternal serum level, and that the babies aged 1 month had the lowest levels.

Because of the critically low maternal and cord values (especially in winter months and in adolescent mothers) we view with caution the recommendation 'not to supplement the breast-fed term infants with vitamin D' in countries where rickets is still common.²⁻⁴

Although we did not study the mother's milk vitamin D content, we think that Birkbeck and Scott's recommendation should not be the accepted practice everywhere, particularly in those parts of the world where rickets (rarely congenital rickets) is common in breast-fed infants.⁵

References

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- 2 Özsoylu S. Leukocyte alkaline phosphatase activity in rickets due to vitamin D deficiency. *N Engl J Med* 1969; **280**: 1221-3.

- 3 Özsoylu S, Turhan O. Alkaline phosphatase activity of duodenal juice in rickets due to vitamin D deficiency. *Acta Paediatr Scand* 1971; **60**: 338-40.

- 4 Özsoylu S, Hanioglu N. Serum magnesium levels in children with vitamin D deficiency rickets. *Turk J Pediatr* 1977; **19**: 89-96.

- 5 Özsoylu S. Letter: Breast feeding and rickets. *Lancet* 1977; **ii**: 560.

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Professor Birkbeck comments:

These observations are important as they re-emphasise the close relationship between the maternal 25-OHCC level and that of the infant. Assuming that the infants in question were breast-fed, the even lower values at age 1 month would again reflect inadequate maternal supplies. Presumably in Turkey dietary intake is low, and heavy winter clothing, perhaps enhanced by cultural shielding of maternal skin and heavy cloud cover, would diminish the opportunity for dermal synthesis. However, we were not advocating stopping supplementation, but only suggesting that it should be a deliberate, not a *routine*, practice: hence the proviso in the second half of our penultimate sentence. In view of the effect of vitamin D deficiency on the skeleton during the pregnancy-lactation cycle, it would be more useful to supplement the mother, thus benefiting not only the present breast-fed infant but also the safe delivery and health of subsequent infants. It would be helpful to study the effects of such a policy in an area where maternal vitamin deficiency, and rickets in breast-fed infants, are common.