range of movement. Follow-up for six weeks showed no bowel abnormality and minor residual swelling of the knee.

Comment

Reactive arthritis is common during infection with intestinal pathogens, including shigella, salmonella, yersinia, and campylobacter,¹ but *Cl difficile* has not been specifically linked with arthritis to date. Two case reports have described arthritis with antibiotic-associated diarrhoea but both were in the "pre-*Cl difficile*" era.^{2,3} The first was a case of migratory polyarthritis after clindamycin with histological pseudomembranous colitis in a 55-year-old man in whom all the large joints and two metacarpophalangeal joints were affected.² Both the diarrhoea and arthritis settled within six days after treatment with steroids. The second case was a 23-year-old woman with ampicillin-associated colitis and a monoarthritis of the right knee which settled within 14 days with aspirin, the diarrhoea having resolved five days earlier.³ The present case was similar in that the diarrhoea predated the arthritis, which improved rapidly after resolution of the diarrhoea. This case, however, documents the presence of faecal *Cl difficile* and its toxin, now the accepted pathogen in most cases of pseudomembranous colitis and in many cases of non-specific colitis and diarrhoea after antibiotics. In the absence of other causes for the acute arthritis this case possibly represents a true reactive arthritis to the presence of enteric *Cl difficile* infection, treatment with oral metronidazole resulting in rapid clearance of toxin and symptomatic relief.⁴

¹ Berden JH, Muytjens HL, Vande Putte LB. Reactive arthritis associated with Campylobacter jejuni enteritis. *Br Med J* 1979;i:380-1.

² Rollins DE, Moeller D. Acute migratory polyarthritis associated with antibiotic-induced pseudomembranous colitis. *Am J Gastroenterol* 1976;65:353-6.

³ Rothschild BM, Masi AT, June PL. Arthritis associated with ampicillin colitis. *Arch Intern Med* 1977;137:1605-7.

⁴ Bolton RP. Oral metronidazole in Clostridium difficile positive antibiotic associated diarrhoea. *Gut* 1980;21:A921.

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Intrauterine vitamin D nutrition and postnatal growth in Asian infants

British Asians are at risk of vitamin D deficiency, especially during pregnancy.^{1,2} In a previous report² we showed that vitamin D supplements given to pregnant Asian women improved calcium status in the fetus in comparison with a placebo group. The infants have been followed since birth as part of a survey of growth and dentition in London Asians. This paper presents the results of measurements made on the infants in their first year, showing improved postnatal growth in those whose mothers received supplementary vitamin D.

Patients, methods, and results

A double-blind trial of vitamin D supplements in Asian women (ergocalciferol 1000 IU per day during the last trimester of pregnancy) was carried out in 1978-9.² Fifty-nine infants were born to women who had received supplementary vitamin D and 67 to the controls. There were no significant differences in birth weight, length, or head circumference in the two groups. The male:female ratio was 1.3:1 in both groups. The infants were seen at 3, 6, 9, and 12 months, when measurements were made of their naked weight on a well calibrated beam balance, crown-heel length on a horizontal stadiometer,³ and occipitofrontal head circumference. Postnatal vitamin supplements were not routinely given and breast-feeding was encouraged. The mean length of breast feeding was 3.2 months in the treated group, whose mothers had received vitamin D during pregnancy, and 3.5 months in the control group. These periods were not significantly different. Six infants in the treated group and three in the control group moved to another area and were lost to follow-up before the measurements were completed.

The results are shown in the table. The treated infants were significantly heavier at each follow-up visit. Lengths were greater at each visit in the treated group but only significantly so at 9 and 12 months. There was no significant difference in head growth between the two groups.

Comment

Little is known about the effects of fetal vitamin D nutrition on subsequent growth, though it appears to affect dentition.⁴ Our control group had evidence of moderately severe vitamin D deficiency,² but it had no apparent effect on intrauterine growth. The finding that these infants grew less well than the supplemented infants during their first year was therefore unexpected but presumably reflects the relatively prolonged action of the vitamin and the benefits provided by increased stores, rather than an unidentified growth-promoting effect. The greater influence on weight gain than on linear growth is unexplained; nevertheless, by 1 year of age crown-heel length in the treated group was 1 cm above the mean of our longitudinal growth data for Asians.⁵ We cannot exclude the possibility that the treated group were given better postnatal nutrition than the control group, but there seems no reason to suppose that this was so, and all the follow-up visits were conducted without knowledge of the original trial status of the mother and infant, which might subconsciously have influenced mothering. The results provide further support for the need to give vitamin D supplements to Asian infants prenatally and probably postnatally as well.

¹ Heckmatt JZ, Peacock M, Davies AEJ, McMurray J, Isherwood DM. Plasma 25-hydroxy vitamin D in pregnant Asian women and their babies. *Lancet* 1979;ii:546-9.

² Brooke OG, Brown IRF, Bone CDM, et al. Vitamin D supplements in pregnant Asian women: effects on calcium status and fetal growth. *Br Med J* 1980;280:751-4.

³ Tanner JM, Whitehouse RH, Takaishi M. Standards from birth to maturity for height, weight, height velocity and weight velocity. *Arch Dis Child* 1966;41:454-71.

⁴ Purvis RJ, Barrie WJ, MacKay GS, et al. Enamel hypoplasia of the teeth associated with neonatal tetany: a manifestation of maternal vitamin-D deficiency. *Lancet* 1973;iii:811-4.

⁵ Brooke OG, Wood C. Growth in British Asians: longitudinal data in the first year. *J Human Nutr* 1980;34:355-9.

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Measurements of physical growth during first year of life in 53 Asian infants receiving antenatal vitamin D supplements and in 64 controls. Results are means $\pm$ SD

Age	Weight (kg)			Length (cm)			Head circumference (cm)		
	Treated	Control	p	Treated	Control	p	Treated	Control	p
Birth	3.13 $\pm$ 0.49	3.05 $\pm$ 0.51	NS	49.9 $\pm$ 2.5	49.6 $\pm$ 2.8	NS	34.6 $\pm$ 1.5	34.2 $\pm$ 1.7	NS
3 months	5.65 $\pm$ 0.58	5.40 $\pm$ 0.54	< 0.05	60.7 $\pm$ 2.1	60.0 $\pm$ 2.5	NS	40.2 $\pm$ 1.4	39.8 $\pm$ 1.5	NS
6 months	7.56 $\pm$ 0.60	7.09 $\pm$ 0.59	< 0.001	67.1 $\pm$ 2.3	66.6 $\pm$ 2.5	NS	43.0 $\pm$ 1.3	42.8 $\pm$ 1.7	NS
9 months	8.54 $\pm$ 0.59	8.29 $\pm$ 0.57	< 0.05	72.0 $\pm$ 2.3	71.2 $\pm$ 2.2	< 0.05	45.0 $\pm$ 1.5	44.8 $\pm$ 1.8	NS
12 months	9.39 $\pm$ 0.66	8.98 $\pm$ 0.62	< 0.001	76.2 $\pm$ 1.9	74.6 $\pm$ 1.7	< 0.001	45.9 $\pm$ 1.6	45.7 $\pm$ 1.4	NS
Increments over 0-12 months	6.39 $\pm$ 0.78	5.92 $\pm$ 0.92	< 0.01	27.9 $\pm$ 2.0	24.6 $\pm$ 5.7	< 0.001			