Maternal Hypovitaminosis D with Neonatal Convulsions

Sir,

Maternal Vitamin D deficiency has been reported in Indian women of lower socioeconomic class and in Asians in temperate climates.[1,2] Reports on neonatal hypocalcemic seizures as a result of maternal vitamin D deficiency in well nourished upper socio-economic class mothers living in tropical areas are rare. One-mth-old male (full term, 3 kg) presented with abnormal movements of limbs since 15 days of life. Family hailed from Latur (Maharashtra, latitude 18.7°N) and mother had four pregnancies in five years. Antenatal history was insignificant and baby was exclusively breastfed. Movements were intermittent, clonic, involving face, then hands and feet, lasting 1-2 min (1-2 episodes/ day), no history of lethargy, vomiting, fever, refusal to feed or rash. He was diagnosed to have hypocalcemia and had received calcium infusion, 3 wk before he came to us.

There were no significant findings on examination, mother was well nourished (BMI 27Kg/m^2) and had no symptoms of bone ill health. Hematology, liver function, electrolytes, blood sugar, lumbar puncture, blood culture, chest X-ray, abdominal ultrasound and infantogram were normal. Mother's total serum calcium (tCa) was 8.71 mg/dl (8.8-11), ionized calcium (iCa) was 3.6mg/dl (4.48-5.28) (ion selective auto analyser), inorganic phosphorous (iP)was 3.87 mg/dl (4.5-5.5), alkaline phosphatase (ALP) was 149 IU (200-645 IU/L) (Semi auto analyser (Biotech, USA)), intact parathyroid hormone (PTH) was 210 pg/ml (10-76) (enzyme Immunoassay technique (BioSource Europe S.A))and 25 (OH) Vitamin D (25OHD) was 5ng/dl(19-28) (radioimmunoassay (DiaSorin, Stillwater, Minnesota, USA)).

Baby's bone health parameters on Day1 showed very low tCa (4.6 mg/dl), iCa (2.2 mg/dl) and 25OHD (2.9 ng/dl), raised iP10.6 mg/dl , ALP 2015 IU and PTH (188 pg/ml). Treatment was initially with IV fluids, phenobarbitone (10mg bd), antibiotic (ceftriaxone) and calcium gluconate (infused IV 8ml as 1:1 dilution 8 hourly for 5 days). 1-25 dihydroxy vitamin D3 0.25 microgram was started twice a day. Baby had no convulsive episodes after 2 days of treatment and was discharged on vitamin D3 and calcimax 4ml twice a day (150 mg elemental calcium/ 5 ml).

At discharge biochemistry showed tCa 7.3 mg/dl iCa 3.6 mg/dl, iP 8.9 mg/dl and at follow up (Day 23) they were tCa 9.8mg/dl, iCa 4.4 mg/dl, iP 5.8 mg/dl , ALP 360 iu, 25OHD 20 ng/dl, PTH 60 pg/ml. *i.e.*, all normal For an exclusively breastfed baby, the main source of vitamin D is breast milk (20 - 60 IU/l).[3] Vitamin D stores of the newborn largely depend on maternal stores, hence, in a vitamin D-deficient mother, the infant will be deficient because of decreased maternal fetal transfer.[4] The mother of our patient came from the upper socioeconomic class and was living in a sun rich area of India. We speculate that her low vitamin D levels were a result of multiple pregnancies and also, probably due to low sunshine exposure during pregnancy. Very few foods in India are fortified with vitamin D and adequate vitamin D supplementation of mothers should be considered irrespective of socio economic status.

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