Symptomatic Vitamin D Deficiency in an Adolescent Girl

Dear Editor,

A 15-year-old girl was brought with a history of carpopedal spasms, off and on for the past 9 months. The child also complained of pain in the lower back and lower limbs for the past 1 year and recurrent diarrhea for the past 3 months. The child was not on any long-term medications like steroids or antiepileptics. There was no history suggestive of jaundice or kidney disease. The child was nonvegetarian and drank one glass of milk (150 ml) per day. Exposure to sunlight was less than one hour per day.

On examination, the child's weight and height were 32 kg and 144 cm, respectively, both below the third percentile for age. Her pulse was 84/min and blood pressure 110/70 mmHg. Trousseau's and Chvostek's signs could be elicited. There was no pallor, icterus, or bony deformities suggestive of rickets. There were no dysmorphic features. Examination of the cardiovascular system revealed no cardiomegaly or murmurs. Other systems were essentially normal. The diagnosis considered was hypocalcemic tetany probably secondary to vitamin D deficiency.

Investigations showed a normal complete blood count. The serum calcium was 7.2 mg/dL, inorganic phosphorus 3.4 mg/dL and alkaline phosphatise 385 U/L (normal 70–230 U/L). Liver and renal function tests were normal. The 25 OH vitamin D was 8.01 ng/ml (deficiency < 20 ng/ml). Intact parathyroid hormone was 122 ng/L (normal 15–65 ng/L). X-ray of the pelvis and hips showed mild osteopenia. In view of the history of recurrent diarrhea, tissue transglutaminase (tTG) IgA was done to screen for celiac disease and was found to be 0.52 (negative <= 0.9). The child was started on weekly cholecalciferol 60,000 IU for 10 weeks with calcium supplements. At follow up 2 weeks later the child has had no recurrence of carpopedal spasms and has no bony pains. Her repeat serum calcium was 8.9 mg/dL.

Our patient presented with acute hypocalcemic tetany, a potentially life-threatening problem and back and limb pains. Patients with hypocalcemic tetany are more likely to be investigated for vitamin D deficiency. However, several patients may present with nonspecific aches and pains which may be dismissed as functional due to lack of findings on examination.

Narchi *et al.* from Saudi Arabia found hypocalcemic tetany in 12 of 21 adolescents with symptomatic rickets.[1] Sahu *et al.* from Chandigarh studied the vitamin D status in rural adolescents and pregnant women and found the prevalence of vitamin D deficiency in adolescent girls to be 88.6%.[2] Also, Puri *et al.* from New Delhi found the prevalence of biochemical hypovitaminosis D to be 90.8% of schoolgirls, with clinical vitamin D deficiency observed in 11.5%.[3]

In developing countries, nutritional rickets is common in infancy and the practice of routine vitamin D supplementation in this age group is well established. Adolescents are also at high risk due to the increased metabolic demand of rapid growth during this period. Despite the presence of abundant sunshine in our country, vitamin D deficiency seems to be widespread. However, there is no agreed policy for vitamin D supplementation for adolescents; hence, specific recommendations need to be formulated.

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