Letters to the Editor

Type 2 diabetes is a common disorder in India and HbA1c assays are widely used to guide treatment. Dapsone use is also not uncommon in India. It is therefore essential that clinicians be aware of the HbA1c lowering effect of dapsone and be cautious while interpreting the HbA1c results of patients who are on this agent.

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Does Vitamin D therapy affect hematological indices in adolescents with vitamin D deficiency?

Sir,

Analysis of the nonclassic actions of vitamin D (3) has highlighted a wide range of target tissues for the hormone 1,25-dihydroxyvitamin D(3) [1, 25(OH)(2)D(3)]. Vitamin D is a steroid hormone that can act on the cellular differentiation and growth in the bone marrow either directly or through hyperparathyroidism. Both systemic or locally produced 1,25 (OH)(2)D(3) may play a role in modulating cell development processes such as hematopoiesis and lymphocyte differentiation. Thus vitamin D deficiency (VDD) may have an adverse effect on the red blood cell (RBC) erythropoiesis in the bone marrow and partially explain the high incidence of iron-deficiency anemia and recurrent infections in children with VDD. Vitamin D insufficiency has also been linked to hypertension and cardiovascular events in observational studies. It is unclear whether vitamin D supplementation can reduce blood pressure. Children with higher BP levels at about 9 years of age and with large increases in BP from 9 to 18 years of age may have an increased risk of becoming hypertensive.

We examined the effect of vitamin D3 therapy (10,000 IU/kg, IM) on RBC count and indices and total and differential white blood cell (WBC) counts as well as on the blood pressure (BP) and heart rate (HR) in 40 adolescents (age 14.6 ± 2.5 years) with VDD (blood level < 15 ng/ml) before after 4 weeks of therapy (vitamin D replete state).

There was no significant effect of VDD on RBC count or indices before versus after correction of vitamin D status. Vitamin D therapy did not have any significant effect on total WBC count nor on the lymphocyte/neutrophil ratio. We detected small but significant increases in the

Table 1: Hematological data before versus after vitamin D therapy

|                      | Before Vit D | After Vit D |
|----------------------|-------------|------------|
| BMI                  | 19.6 ± 2.5  | 19.9 ± 3.1 |
| Systolic BP (mm Hg)  | 109.3 ± 7.2 | 106.6 ± 8.5|
| Diastolic BP (mm Hg) | 69.1 ± 6.3  | 68.56 ± 5.9|
| Pulse (/min)         | 75.5 ± 7.7  | 73.3 ± 10.2|
| 25 OHD ng/ml         | 3.8 ± 2.5   | 35.8 ± 7.8*|
| ALP (U/L)            | 809 ± 292   | 586 ± 210* |
| Calcium nmol/L       | 2.16 ± 0.24 | 2.35 ± 0.15|
| Phosphate nmol/L     | 1.21 ± 0.34 | 1.62 ± 0.32*|
| RBCs (million/μl)    | 4.85 ± 0.6  | 4.96 ± 0.35|
| Hb g/dl              | 9.5 ± 0.89  | 10.3 ± 1.2 |
| Htc (%)              | 30.4 ± 2.8  | 32 ± 2.8   |
| MCV (fl)             | 66.6 ± 13   | 69.6 ± 18  |
| MCH pg               | 19.7 ± 3.4  | 22.3 ± 4.3 |
| RDW (%)              | 15.4 ± 2.7  | 15.78 ± 2.9|
| Retics (%)           | 1.17 ± 0.5  | 1.16 ± 0.47|
| WBCs (1000/μl)       | 8.6 ± 3.3   | 8.8 ± 2.8  |
| Neutrophils (%)      | 52.2 ± 12   | 53.1 ± 11.2|
| Lymphocytes (%)      | 39.1 ± 10.2 | 39.7 ± 11.3|
| Platelets (1000/μl)  | 382 ± 156   | 473 ± 180* |
| Monocytes (1000/μl)  | 728 ± 384   | 935 ± 396* |

Hb: Hemoglobin, Hct: Hematocrit, RBCs: Red cell count, ALP: Alkaline phosphatase, Vit D: Vitamin D, PTH: Parathormone. *P < 0.05 after versus before treatment
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platelet and monocyte counts after vitamin D therapy ($P < 0.04$ and 0.03 respectively). There was no significant effect of VDD on BP or HR and correction of VDD did not significantly change the BP or HR. No significant correlation was detected between RBC indices, WBC count, and BP on the one hand and vitamin D level on the other hand [Table 1].

Vitamin D deficiency does not have significant effect on RBC count and indices, on WBC total and differential count, nor on BP and HR. A mega-dose vitamin D therapy did not have significant effect on all these parameters in adolescents.

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