

## Vitamin D: For Whom and How Much?

We read with interest the recommendations on prevention and treatment of vitamin D and calcium deficiency [1]. While welcoming this article that served the need of the hour, we have the following comments.

Our first observation pertains to risk of vitamin D toxicity likely to be associated with use of bolus doses of vitamin D for treatment of rickets in infants. The authors recommend 60,000 IU vitamin D weekly for 6 weeks as treatment for rickets in all infants >3 months of age. They have quoted Endocrine Society USA guidelines [2] for the same, which in fact recommend a dose of 50,000 IU weekly. This recommendation was based on a single study [3] that was underpowered, with a final sample size less than estimated. Hypervitaminosis was observed in 3/35 infants enrolled in that study. A rapid rise in vitamin D levels with one- or two-monthly bolus doses of vitamin D in infants has also been reported by others [4,5]. Thus, there is no evidence that 60,000 IU vitamin D weekly for 6 weeks is a safe regimen in infancy, while there are definite pointers that this may be associated with serum vitamin D exceeding safety limits, especially since lower doses are known to heal rickets [6]. Moreover, the recommendation of a Tolerable Upper Limit of rather large doses of 1000 to 3000 and 4000 units daily [1], presumably indefinitely, has no supporting literature and may be toxic [7].

Our second observation pertains to preventive supplementation. While there is sufficient Global and Indian literature to recommend universal pharmacological supplementation for all infants not deriving their intake from formula milk, there is a scarcity of studies between 3 and 10 years age. This is an age group where we do not usually encounter nutritional rickets. Thus, recommending vitamin D intake to all children in this age group is not backed by evidence. Adolescents (particularly girls) and pregnant women have been documented to have high prevalence of deficiency in studies from Northern and Central India, and deserve supplementation, but much more data are needed from the Southern and coastal states and the North-East of our country, in all age groups. Universal recommendation of supplementing all children and adolescents, therefore, lacks evidence, apart from being impractical.

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## AUTHORS' REPLY

For treatment of rickets, the Guideline for Vitamin D and Calcium in Children' Committee has recommended a dose of 2000 IU/day of vitamin D orally for a minimum duration of 3 months to be followed up with maintenance doses. We have further recommended that larger doses may only be considered when compliance or absorption from gut is an issue, in infants over 3 months of age [1]. Thus, it is not a recommendation for 'all' infants.

The Global Consensus Statement has recommended 2000 IU/day of vitamin D for a period of three months for treatment of rickets. Further, they have advised a 50,000 IU single dose if a bolus dose is to be given. The total dose received, if 2000 IU/day is administered as per their recommendations, comes to 180000 IU in 90 days, while the bolus dose is 50,000 IU [2]. This issue was considered by the Committee when all Guidelines were reviewed and after deliberation, the Committee decided on a weekly dose as advised by the Endocrine Society Clinical Practice Guideline [3]. Further, the Committee also decided on recommending 60,000 rather than 50,000 IU as