Vitamin D deficiency and mild to moderate anemia in young North Indian children: A secondary data analysis

Author links open overlay panelRanadip Chowdhury M.D. a, Sunita Taneja Ph.D. a, Nita Bhandari Ph.D. a, Tor A. Strand Ph.D. b c, Maharaj Kishan Bhan M.D. d e

Show more

Add to Mendeley

Share

Cite

<https://doi.org/10.1016/j.nut.2018.05.034>[Get rights and content](https://s100.copyright.com/AppDispatchServlet?publisherName=ELS&contentID=S0899900718306038&orderBeanReset=true)

Abstract

Objectives

The aim of this study was to examine the association between [vitamin D](https://www.sciencedirect.com/topics/medicine-and-dentistry/vitamin-d) deficiency and anemia status among young children in the resource-poor setting of northern urban India.

Methods

We used data from a randomized controlled trial of daily supplementation with folic acid, vitamin B12, or both for 6 mo in children 6 to 30 mo of age conducted in Delhi, India. We measured serum vitamin D status, hemoglobin, plasma vitamin B12, folate, soluble transferrin receptor, and homocysteine levels at baseline. Children with severe anemia (hemoglobin [Hgb] <7 g/dL) were excluded from enrollment. Multivariable logistic and multinomial logistic regressions were used to examine the association between vitamin D and anemia status at baseline.

Results

25-Hydroxyvitamin-D (25 OHD) concentration was measured for 960 (96%) children. Of the children, 331 (34.5%) were vitamin-D deficient (<10 ng/mL). Approximately 70% of the enrolled children were anemic, with ∼46% having moderate (Hgb 7–9.9 g/dL) and 24% mild (Hgb 10–10.9 g/dL) anemia. There was no association between vitamin D and anemia status after adjusting for confounders; however, the risk for moderate anemia was significantly higher among vitamin D-deficient children than those who were vitamin-D replete (relative risk, 1.58; 95% confidence interval, 1.09–2.31).

Conclusions

[Vitamin D deficiency](https://www.sciencedirect.com/topics/medicine-and-dentistry/vitamin-d-deficiency) was associated with moderate anemia among young children and the effect was independent of iron deficiency. The causal association of vitamin D deficiency with anemia risk remains debatable. The role of vitamin D in risk for anemia needs to be examined in further studies.