Fat-soluble Vitamins (A, D): Prevalence of Deficiencies and Supplementation Program Among Young Children in Algeria

Cherifa Akrour-Aissou
Laboratory of Human Nutrition, National High School of Agronomy, Algiers, Algeria
Laboratory of Biochemistry, National High School of Marine Sciences, Algiers, Algeria

Thierry Dupré
Laboratory of metabolic and cellular Biochemistry, Bichat-Claude Bernard Hospital, Paris, France

Abstract:

The prevalence of vitamin A and D deficiencies, calculated on a group of healthy Algerian children aged 1 to 23 months, was far from negligible. The assessment of vitamin A status by serum retinol dosage suggests that, even in the studied area (Blida) in northern Algeria, vitamin A deficiencies (VAD) are common. Of the 150 children studied, not supplemented with vitamin A, 19% had a serum retinol concentration lower than 0.70 µmol/L, which indicates the presence of a moderate VAD according to the classification of the significance levels of the VAD in public health in young children (6-71 months). The highest rate of VAD is observed in the infant class (1-2 months) (41%). However, the deficiency in vitamin A transporter proteins (76% deficient in retinol binding protein (RBP) and 10% in prealbumin), probably linked to moderate malnutrition, may be a confounding factor.

Assessment of vitamin D status by measuring circulating calcidiol (25OHD), show the existence of a significant difference between the average serum concentrations of children's groups with vitamin D (D3 B.O.N*) supplement (n= 125) and non-supplement (n= 25).

The prevalence of vitamin D deficiency remains high (40%) in the children's group with non-supplement in vitamin D according to the new threshold 25(OH) D < 20 µg/L or 50 nmol /L compared to children group with vitamin D supplement (4%). None of the 125 children who received vitamin D supplementation according to the recommendations currently used in Algeria (one dose of 200.000 IU at 1 month and a second dose of 200.000 IU at 6 months), presents a severe deficiency in vitamin D (25(OH) D <10 µg/L). These results highlight the importance of vitamin D supplementation to improve the vitamin D status of at-risk children.