



CENTRE D'ETUDE ET DE RECHERCHE MEDECINS D'AFRIQUE

www.medecins-afrique.org

Research, Training & Scientific Resources for the Socio-Medical Development of Africa

Ref : CERMA2006E2

Prevalence of infant Vitamin A deficiency and undernutrition in the Republic of Congo

C. Samba^{a, b}, F. Tchibindat^c, P. Houze^d, B. Gourmel^d, D. Malvy^{a, b}

a- Service des Maladies tropicales, Hôpital Saint André, University Hospital Center of Bordeaux and Centre René Labusquière (Tropical Diseases Branch), EA 3677, University Victor Segalen Bordeaux 2, F-33076 Bordeaux, France

b- CERMA (Centre d'Etudes et de Recherche Médecins d'Afrique), Brazzaville, Congo and Médecins d'Afrique, Park 172, rue des fleurs, Quartier Ravin du Tchad, Brazzaville, République du Congo

c- UNICEF Brazzaville (Congo), BP 2110, D-34 Rue Lucien Fourneau, Brazzaville, République du Congo

d- Laboratoire de Biochimie A, Hôpital Saint Louis, 1 Avenue Claude Vellefaux, F-75011 Paris, France

Acta Tropica 97(3), 270-283 (2006)

Abstract

A representative sample of 5722 pre-school children living in rural and urban areas of the Congo was examined between July and September 1999 for assessing Vitamin A deficiency.

Using a randomized two-level cluster sampling method, 190 clusters of 30 children aged from 6 months to 6 years were selected in order to assess the prevalence of active xerophthalmia (night blindness and/or Bitot spots). Concurrently, the children's height and weight were determined. A semi-quantitative seven-day dietary questionnaire was applied to the mothers of 5722 children to estimate the latter's consumption of Vitamin A rich foodstuffs. The prevalence of biochemical deficiency was assessed based on the serum retinol concentrations analyzed in dried blood spots from a sub-sample of 300 children living in the Pointe-Noire area.

Among the 5722 children studied, 0.7% were found to suffer from night blindness and 7.7% had Bitot spots. The weekly intake of Vitamin A rich foods was estimated in 5722 children. Our data suggest that Vitamin A rich food consumption was lower in rural zones than in urban area according to the food frequency method threshold values. The serum retinol levels were lower than 10 µg/dl in 18% (95% confidence interval [C.I.]: 13.7, 22.3) [8.04 ± 2.87 µg/dl] and less than 20 µg/dl in 49% (95% C.I.: 43.4, 54.6) [15.05 ± 2.76 µg/dl] of the 300 studied children. We have established a significant relation between mean serum retinol levels and high rate of Vitamin A food intake (chi-square = 59.64, 2 d.d.l., p < 0.05) in the sample studied. The mean serum retinol concentrations did not differ significantly between the various Z-scores of weight for age (W/A) and height for age (H/A) patterns. But children with a weight for height (W/H) ratio below -2 standard deviation (S.D.) had significantly lower serum retinol values [9.33 ± 1.3 µg/dl] than those with a W/H ratio greater than or equal to -2S.D. [10.82 ± 4.84 µg/dl].

These data suggest that Vitamin A deficiency is still a serious public health problem in rural areas of the Congo in which this study was carried out.

Keywords:

Vitamin A deficiency; Nutritional status; Vitamin A intake and supplementation; Dried blood spot