

Serum concentration and dietary zinc intake in children and adolescent with chronic diseases

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Statement of the problem: Zinc is an essential micronutrient and plays a significant role in human growth and development. Zinc deficiency is a public health problem and is now widely recognized as a one of the main risk factors for morbidity and mortality. There are few studies of zinc deficiency in children with chronic diseases. Therefore, the purpose of this study was to evaluate the nutritional status of zinc and its association with nutritional indicators in a series of children with chronic diseases.

Methodology: A cross-sectional and comparative study was carried out by design. Anthropometric, biochemical, and dietary assessment were performed.

The participants were classified according to their nutritional status by body mass index (BMI). The prevalence of patients with dietary zinc deficiency (<80% DRI: Dietary Reference Intake) was analyzed through prospective 72 h dietary surveys with a weekday, and hypozincemia (under 70 µg/dL in children under 10 years of age in both sexes and in females older than 10 years and below 74 µg/dL in males older than 10 years) was measured through atomic absorption spectrophotometry. Findings: Seventy-eight patients (43 females, 55%), 24 children with obesity, 30 with undernutrition, and 24 with normal BMI took part in this study.

Mean serum zinc concentration in obese (87 µg/dL), undernourished (85 µg/dL), and eutrophic children (88 µg/dL) were normal, but in the undernutrition (60% DRI) and eutrophic (67% DRI) groups the mean dietary zinc intake was low compared to that in the obesity group (81% DRI). There were different associations between nutritional parameters, dietary zinc intake, and serum zinc. There were five cases with hypozincemia. All patients with hypozincemia had dietary zinc deficiency.

Conclusions & Significance: In the whole series, 69% of participants showed a zinc intake lower than recommended and might be at high risk of zinc deficiency.

Biography

Marlene Fabiola Escobedo Monge is a pediatrician, Doctor of Medicine, and researcher at the Faculty of Medicine of the Valladolid University. She has a doctorate in "Health Sciences Research", two master's degrees, one in "Clinical Nutrition" and the other in "Biological Aspects of Nutrition." She is a peer reviewer for the MDPI editorial, International Journal of Environmental Research and Public Health and Medicine. She is very interested in food security and food biofortification and especially in the research that is being carried out on micronutrients in the nutritional status of patients with malnutrition and chronic diseases, especially in childhood and adolescence. She believes in the value of preventive medicine in reducing chronic diseases throughout the life of the human being.