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Effects of Zinc Sulfate on Children with Chronic Kidney Disease

Statement of the Problem: Zinc is one of the most essential trace elements for all forms of life and plays an important role in human growth and development. Both zinc deficiency and chronic kidney disease (CKD) are global public health problems, widely recognized as major risk factors for morbidity and mortality. There are few studies on zinc deficiency in children with CKD. Therefore, the purpose of this study was to evaluate the effect of two doses of zinc supplements (ZS) on the nutritional status of children with CKD.

Methodology & Theoretical Orientation: A multicenter randomized trial was carried out in 48 patients with CKD (23 women) under 18 years of age, for one year. At random, the participants took 30 or 15 mg/day of ZS, respectively. Anthropometric measurements and biochemical analyzes were carried out. Hypozincemia was determined by serum zinc concentration (SZC) using atomic absorption spectrophotometry. Positive or negative changes in patients' body mass index (BMI) Z score, serum albumin, zinc, and C-reactive protein (CRP) levels were used to assess the effect of ZS.

Findings: mean SZC was normal before and after ZS. Men had a higher mean SZC than women. Despite the ZS, there were no significant changes in serum albumin, zinc, and CRP levels. A positive and significant association was observed between SZC and serum albumin before ($p = 0.000$) and after ($p = 0.007$) ZS. In both ZS groups, there was a small but positive and significant change in body mass and normalization in BMI Z-index, hypoalbuminemia, hypozincemia, and high CRP, especially with ZS 30 mg/day.

Conclusion & Significance: Zinc supplementation may be beneficial for nutritional status in children and adolescents with CKD.

Biography

Marlene 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.

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