Hasanin Mohamed

National Research Centre,
Egypt

Micronutrient supplementation as an interventional therapy for growth faltering in children with environmental enteric dysfunction

Abstract:

Background: Environmental enteric dysfunction (EED) is a subclinical disorder which affects the small bowel of children, mainly living in developing countries. Zinc acts a major function in intestinal cells proliferation and crypt-villus structure preservation. Omega-3fatty acids modulate some enzymes implicated in intestinal inflammation.

Objective: This researchwasperformedtoassesstheeffectofreceivingbothzincandomega 3 supplements on anthropometric parameters and serum markers levels of EED [high sensitive C-reactive protein (hsCRP), Alpha-1-acid glycoprotein (AGP), tumor necrosis factor alpha (TNF-α), zonulin, and antibody of endotoxin core (EndoCAb)]. In those stunted kids with EED, this evaluation may lead to enhancing the nutritional composition of complementary food introduced to stunted and malnourished children having EED.

Materials and methods: This interventional study included 105 stunted and/or underweight children who were diagnosed as EED patients. They were subdivided into two groups; group I:55 children receiving zinc sulphate and group II: 50 children receiving omega-3. Quantification of serum markers of EED (hsCRP, AGP, TNF-α, zonulin, antibody of endotoxin core) in addition to serum vitamin D, along with assessment of anthropometric parameters were performed to those children 6 months after zinc and omega-3 supplementation.

Results and Conclusion: In all subjects postintervention group, anthropometric parameters [height for age z score (HAZ) score, weight for age z-score (WAZ) score and arm circumference] increased significantly 6 months after supplementation, however serum markers of EED (AGP, hsCRP, TNF-α and zonulin) decreased significantly 6 months after supplementation. Vitamin D level correlated positively with weight for age z-score and height for age z-scores.

Conclusion: Oral zinc sulphate and omega-3 may be added to EED management protocol to improve anthropometric parameters and decrease serum markers of EED.

Biography

Hasanin M. Hasanin (MD) is a researcher in the Department of Pediatrics at the National Research Centre, Institute of Medical Research and Clinical Studies, Cairo, Egypt. His work focuses on pediatric health and clinical research aimed at improving child health outcomes through evidence-based medical studies.