

A CASE-CONTROL STUDY OF NUTRITIONAL FACTORS ASSOCIATED WITH CHRONIC SUPPURATIVE OTITIS MEDIA IN YEMENI CHILDREN

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Background: Undernutrition and chronic suppurative otitis media (CSOM) in children are common in low resource settings but there are few studies of their interactions.

Aim: To evaluate nutritional factors associated with CSOM in Yemeni children.

Methods: A case-control study of 75 children with CSOM and 74 healthy controls. Assessment included dietary history, anthropometry, haemoglobin, and serum analytes zinc, copper, selenium, iron, calcium, phosphate and total 25-hydroxy vitamin D [25(OH)D].

Results: Cases had lower mean z scores for weight-for-age, weight-for-height, body mass index (BMI) and mid-upper arm circumference (MUAC) (all $P < 0.05$), and lower mean concentrations of serum zinc ($P = 0.032$), selenium ($P < 0.001$) and calcium adjusted for albumin ($P = 0.026$). Age-adjusted haemoglobin and iron biomarkers did not differ between cases and controls. There was high prevalence of low serum zinc concentration ($\geq 90\%$), and vitamin D deficiency in both cases (80%) and controls (96%). Duration of ear discharge was negatively correlated with total 25(OH)D, calcium adjusted for albumin, phosphate, transferrin receptor/log ferritin ratio, and copper (all $P < 0.05$); and positively correlated with child age and MUAC (both $P < 0.001$).

Conclusions: Children with CSOM were more undernourished than controls with lower mean serum zinc, selenium and calcium concentrations. Vitamin D deficient and iron replete children had longer duration of infection although this association was lost with age adjustment. Trials evaluating specific micronutrients are required in order to investigate specific nutrient-infection interactions in CSOM.