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The Effect of Zinc Supplementation on Serum Albumin and Folic Acid Concentrations in a Group of Hypoalbuminaemic and Hypozinaemic Aged Persons

Certain groups within Western Society may be at risk from sub-optimal zinc and protein nutrition (1). A group of aged persons have been identified by us, in whom there are combined apparent deficiencies of zinc and protein as evidenced by hypozinaemia and hypoalbuminaemia and in some folic acid deficiency as well (2). There was a significant relationship between plasma zinc and serum albumin concentrations ($n = 113$; $r = 0.55$, $p < 0.001$). Since protein synthesis and folic acid absorption are each dependent on zinc metalloenzymes, the effect of oral zinc supplementation on serum albumin and folate concentrations was assessed on fourteen hypoalbuminaemic and hypozinaemic aged persons who were studied over a ten week period. A zinc supplement of 50mg zinc (220 mg zinc sulphate) was given once daily after breakfast for six weeks. The food intake did not change during this period. Twenty-one days of zinc supplementation caused a significant increase in serum albumin concentrations from the baseline level of $33.5 \pm 0.5g/l$ to $36.3 \pm 0.6g/l$ ($p < 0.001$). At forty-two days the serum albumin concentrations were also significantly higher than the baseline, $35.2 \pm 0.4g/l$ ($p < 0.001$). After cessation of zinc supplementation, serum albumin concentrations returned to near baseline levels.

There was no significant change in serum folate concentrations throughout the study period. Correction of zinc deficiency, therefore, allowed a rise in serum albumin which suggests that zinc supplementation may be worthwhile in this community. There are also implications for other hypoalbuminaemic groups, such as renal patients, who are sometimes found to be hypoalbuminaemic and hypozinaemic.

(1) Sandstead, H.H. Zinc Nutrition in the United States. Am.J.Clin.Nutr. 26 : 1251, 1973

(2) Flint, D.M., Wahlqvist, M.L., Prinsley, D.M., Parish, A.E., Fazio, V., Peters, K. and Richards, B. Nutritional Assessment of Community and Institutionalised Elderly. Food & Nutr. Notes & Rev. in press, 1979.

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