Trace element status in Saudi patients with established atherosclerosis.

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Abstract

BACKGROUND:

Traditional coronary risk factors do not fully explain variations in the incidence of cardiovascular disease (CVD). Epidemiological studies have implicated perturbations in selenium, copper, and zinc metabolism in the aetiology of CVD. However, these studies have been principally undertaken in Caucasian populations, in whom trace element intake is generally sufficient.

METHOD:

We have measured serum and urine selenium, copper, and zinc; and superoxide dismutase, glutathione peroxidase, and lipid peroxide concentrations in 130 Saudi male subjects with established CVD, and 130 age-matched controls.

RESULTS:

Diabetes mellitus, positive smoking habit (p<0.0001 for both), and hypertension (p<0.05) were more prevalent among CVD patients. Urinary copper (p<0.0001) and zinc (p<0.05) were higher among controls. Serum selenium concentrations were lower among CVD patients (p<0.001), and a high proportion (52%) had selenium levels below 79mug/L compared to controls (22%) (p<0.0001). Conditional logistic regression analysis, showed the characteristics differentiating CVD patients from controls were serum zinc (odds ratio (OR) 0.92, confidence interval (CI) 0.85-0.99, p<0.05), serum copper/zinc ratio (OR 0.31, CI 0.10-0.96), serum selenium (OR 0.07, CI 0.02-0.31, p<0.0001), and urine selenium (OR 3.34, CI 1.40-7.99, p<0.01).

CONCLUSION:

Measures of trace metals status appear to be associated with the risk of atherosclerosis in a Saudi male

population