

Serum selenium and glutathione peroxidase in patients with obesity and metabolic syndrome

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Abstract

There are limited data on the relationship between antioxidant status and features of the Metabolic Syndrome. We have determined the serum selenium and glutathione peroxidase concentrations in Caucasian patients with obesity and metabolic syndrome. Patients (n = 237) were recruited from Cardiovascular risk management clinics at the Royal Surrey County Hospital, Guildford. Individuals who were non-obese, without a history of coronary disease and who were not on any prescribed medication (n = 130) were recruited from staff of the university and hospital. All data were adjusted for age and gender using analysis of covariance (ANCOVA). Overall, clinic patients had a significantly higher dietary intake of total fat, protein and selenium compared with the healthy individuals. Patients also had a significantly higher serum selenium (1.04 ± 0.23 U/mL, $p < 0.05$) and lower serum GPx (0.31 ± 0.01 U/mL, $p < 0.001$) concentrations compared to the healthy individuals (1.02 ± 0.2 and 0.36 ± 0.1 respectively). Within the patient group, obese subjects had significantly higher serum concentrations of selenium (1.04 ± 0.24 umol/L, $p < 0.05$) and lower serum GPx (0.28 ± 0.09 U/mL, $p < 0.001$) compared with non-obese patients (1.10 ± 0.23 and 0.32 ± 0.10 respectively). Moreover, within this group, serum selenium concentrations decreased significantly with accumulating features of metabolic syndrome ($p < 0.05$). The lower levels of serum GPx in obesity and lower concentrations of serum selenium associated with accumulating features of the metabolic syndrome may be related to the presence of an atherosclerosis prone state with an increased consumption of antioxidants by free radical interaction. © Asian Network for Scientific Information, 2008.

Reaxys Database Information

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