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Chromium status and glucose tolerance in Saudi men with and without coronary artery disease.

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Abstract

Chromium deficiency is associated with impaired glucose tolerance (IGT) and dyslipidemia. Hence, the objective of the current study was to investigate chromium status among Saudi men with and without established cardiovascular disease (CVD) and its relationship to glucose tolerance, lipid profile and other established CVD risk factors. We measured serum and urine chromium concentrations, fasted lipid profile, plasma glucose, and serum lipid peroxide in 130 Saudi men with an established history of myocardial infarction and 130 age-matched controls without established CVD. Patients with established CVD had higher serum triglycerides ($p < 0.05$) and plasma glucose ($p < 0.0001$) and lower serum and urinary chromium concentrations ($p < 0.0001$) than controls. Serum chromium was inversely correlated with plasma glucose among cases and controls ($r = -0.189$, $p < 0.05$ and $r = -0.354$, $p < 0.00001$, respectively). Plasma glucose (OR 1.127, CI 1.0-1.269, $p < 0.05$), serum chromium (OR 0.99, CI 0.985-0.995, $p < 0.0001$), and urinary chromium (OR 0.988, CI 0.981-0.995, $p < 0.001$) were independently associated with the presence of established coronary disease applying this model. While chromium metabolism appears to be altered in individuals with CVD, it is unclear whether chromium supplementation would be effective in CVD prevention among patients with IGT. This would need to be tested in long-term outcome trials.