Retinol-binding protein 4 is associated with components of the metabolic syndrome, but not with insulin resistance, in men with type 2 diabetes or coronary artery disease.

AIMS/HYPOTHESIS: Retinol-binding protein 4 (RBP4) has recently been reported to be associated with insulin resistance and the metabolic syndrome. This study tested the hypothesis that RBP4 is a marker of insulin resistance and the metabolic syndrome in patients with type 2 diabetes or coronary artery disease (CAD) or in non-diabetic control subjects without CAD. METHODS: Serum RBP4 was measured in 365 men (126 with type 2 diabetes, 143 with CAD and 96 control subjects) and correlated with the homeostasis model assessment of insulin resistance index (HOMA-IR), components of the metabolic syndrome and lipoprotein metabolism. RBP4 was detected by ELISA and validated by quantitative Western blotting. RESULTS: RBP4 concentrations detected by ELISA were shown to be strongly associated with the results gained in quantitative Western blots. There were no associations of RBP4 with HOMA-IR or HbA(1c) in any of the groups studied. In patients with type 2 diabetes there were significant positive correlations of RBP4 with total cholesterol, LDL-cholesterol, VLDL-cholesterol, plasma triacylglycerol and hepatic lipase activity. In patients with CAD, there were significant associations of RBP4 with VLDL-cholesterol, plasma triacylglycerol and hepatic lipase activity.
activity, while non-diabetic control subjects without CAD showed positive correlations of RBP4 with VLDL-cholesterol and plasma triacylglycerol. CONCLUSIONS/INTERPRETATION: RBP4 does not seem to be a valuable marker for identification of the metabolic syndrome or insulin resistance in male patients with type 2 diabetes or CAD. Independent associations of RBP4 with pro-atherogenic lipoproteins and enzymes of lipoprotein metabolism indicate a possible role of RBP4 in lipid metabolism.