Effect of Renin-Angiotensin system blockade on insulin resistance and inflammatory parameters in patients with impaired glucose tolerance.

Abstract:

The study investigated the effect of angiotensin receptor blockers (ARB) on glucose homeostasis and inflammatory parameters in patients with impaired glucose tolerance (IGT). We prospectively studied the insulin sensitivity index (ISI) and homeostasis model assessment-insulin resistance (HOMA-IR) in 13 obese males with IGT and in 13 matched control subjects with normal glucose tolerance (NGT) during hyperglycemic testing over 90 min. Adiponectin, retinol-binding protein 4 (RBP4), and high-sensitive C-reactive protein (hsCRP) were analyzed. Measurements were performed at baseline and after a 4-week treatment with 160 mg/day valsartan. The results of the IGT and NGT groups were compared. At baseline, HOMA-IR (IGT 4.1 +/- 3 vs. NGT 2.3 +/- 1.0, P< 0.01), hsCRP (IGT 3.9 +/- 1.9 vs. NGT 1.8 +/- 1 mg/l, P< 0.05), and RBP4 (IGT 27.1 +/- 2.1 vs. NGT 24.0 +/- 2.0 ng/ml, P< 0.05) were significantly higher, whereas ISI (IGT 1.5 +/- 0.9 vs. NGT 1.8 +/- 1.2, P< 0.05) and plasma adiponectin (IGT 3.2 +/- 0.9, NGT 5.2 +/- 2.4 microg/ml, P< 0.05) were significantly lower in the IGT group compared with the NGT group. Under ARB, there was an increase in both groups of adiponectin (IGT 4.1 +/- 1.9 microg/ml, NGT 6.3 +/- 2.9 microg/ml, P< 0.05) and an increase in ISI (IGT 1.5 +/- 0.9 to 2.3 +/- 1 microg/ml, NGT 1.8 +/- 1 to 2.5 +/- 2 microg/ml, P< 0.05). HOMA-IR (4.1 +/- 3 to 2.6 +/- 2; P< 0.01), hsCRP (3.9
+/− 1.9 to 1.8 +/− 1 mg/l, P< 0.05), and RBP4 (27.1 +/− 2.1 to 22.1 +/− 1.8 ng/ml, P< 0.01) decreased significantly in the IGT group. Insulin sensitivity and associated inflammatory factors improve under ARB in IGT patients.