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Abstract: OBJECTIVE: Multimeric high molecular weight (HMW) forms of adiponectin were previously shown to be inversely associated with the extent of atherosclerosis in males and are down-regulated in patients with the metabolic syndrome and type 2 diabetes. In this study, potential influences of atorvastatin therapy on adiponectin multimer distribution were studied in patients with type 2 diabetes. DESIGN, PATIENTS AND MEASUREMENTS: The effect of 40 mg atorvastatin on HMW, medium molecular weight (MMW), and low molecular weight (LMW) isoforms of adiponectin were investigated in 75 patients (23 females; 52 males) with type 2 diabetes in an 8-week-long, placebo-controlled and randomized study. Adiponectin multimeric isoforms were detected by Western blot analysis. RESULTS: After atorvastatin therapy the median serum concentration of HMW adiponectin increased significantly by 42.3% (1.68 vs. 2.39 microg/ml; P< 0.001), while concentrations of MMW adiponectin and LMW adiponectin significantly decreased by 20.8% and 23.2%, respectively (MMW: 3.31 vs. 2.62 microg/ml, P = 0.047; LMW: 0.56 vs. 0.43 microg/ml, P = 0.033). Median total adiponectin levels were not significantly altered by atorvastatin treatment (6.0 vs. 6.2 microg/ml, P = 0.898). Consequently, the HMW: total-adiponectin ratio significantly
increased by 25.0% (0.40 vs. 0.50; P = 0.013). CONCLUSIONS: Atorvastatin therapy is associated with significant changes in adiponectin multimer distribution in patients with type 2 diabetes. Since total adiponectin levels were not affected by intervention, atorvastatin may shift adiponectin size towards the HMW form.