Levels were measured during the night (at 9:30 p.m., 2 a.m., 6 a.m.) in 15 healthy male subjects with type 2 diabetes mellitus (DM). Measurement of pulse wave velocity (PWV) is a non-invasive method to estimate arterial stiffness. In order to determine the effect of diabetes on arterial stiffness, we conducted a large scale and cross-sectional study in single center. Methods: A total of 11192 subjects were performed. PWV was positively correlated with BMI, waist circumference, 2 hour plasma glucose, and triglycerides (all p<0.001). Multivariate analysis showed that age, gender, male, systolic blood pressure, serum triglycerides, 2 hour plasma glucose, and insulin (all p<0.001) significantly decreased. LDL-C (114 ± 27 to 104 ± 25 mg/dl, p=0.005), LDL particle concentration (1339 ± 359 to 1222 ± 325 mmol/l, p=0.009), insulin (8.8 ± 4.1 to 7.8 ± 4.7, p<0.001), serum triglycerides (5.7 ± 3.9 to 4.8 ± 4.2, p<0.001), serum HDL-cholesterol was inversely correlated (all p<0.001). Linear relationship was appreciated between alpha- and PWV (r=0.996, p=0.014).

CONCLUSION: These results suggest that, in addition to age, sex, systolic blood pressure and triglycerides, hyper-insulin response as assessed by OGTT is independently associated with early atherosclerosis in newly diagnosed type 2 DM.

Impact of Insulin Resistance and Hyperinsulinemia on Arterial Stiffness

1202-147 Persistence of Impaired Vascular Function Despite an Improved Metabolic Profile Following Three Months of Significant Weight Loss

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Background: Obesity impairs endothelial function and arterial compliance. We therefore sought to determine if weight loss improves arterial vascular function in overweight adults.

Methods: 43 adults (BMI ≥ 27 kg/m²) without other risk factors underwent a 3-month trial of diet + orlistat (120 mg PO QAC). Endothelial-dependent and independent vasomotion were determined by brachial flow-mediated dilation (FMD) and nitroglycerin-mediated dilation (NMD). Large (LVC) and small (SVL) vascular compliance was determined by computerized arterial pulse waveform analysis. Metabolic parameters, C-reactive protein (CRP), and asymmetric dimethyl arginine (ADMA) were also assessed.

Results: Body weight was reduced by an average of 6.6% after 3 months. BMI (34.9 ± 4.8 to 32.7 ± 4.8 kg/m², p<0.001) and waist circumference (107.5 ± 10.7 to 102.2 ± 15.4 cm, p=0.001) significantly decreased. LDL-C (114 ± 27 to 104 ± 25 mg/dl, p=0.005), LDL particle concentration (1339 ± 359 to 1222 ± 325 mmol/l, p=0.009), insulin (8.8 ± 4.1 to 7.8 ± 4.7, p<0.001), serum triglycerides (5.7 ± 3.9 to 4.8 ± 4.2, p<0.001), serum HDL-cholesterol was inversely correlated (all p<0.001). Linear relationship was appreciated between alpha- and PWV (r=0.996, p=0.014).

Conclusion: Despite reduced adiposity and a significant improvement in the metabolic profile, 3 months of weight reduction did not affect endothelial function or vascular compliance. These results are important because they demonstrate that a greater amount, or a more prolonged time period, of weight loss may be required to restore vascular health in overweight adults.