P 14: Hypertriglyceridemic waist phenotype in type 2 diabetes: association with higher hs-CRP and lower antioxidative enzyme activity

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Background and aim: It was previously suggested that hypertriglyceridemic waist (HTGW) phenotype (waist girth ≥90 cm in men and ≥85 cm in women, and triglyceride (Tg) levels ≥2.0 mmol/l) could identify visceral obesity and higher risk for atherosclerosis, but the relationship between HTGW phenotype and different atherosclerosis risk factors has not yet been elucidated. The aim of this study was to analyze (a) hs-CRP levels, (b) lipid levels and (c) antioxidiant enzyme glutathione peroxidase (GSH-Px) and superoxide dismutase (SOD) activities in the following groups of subjects: 30 patients with type 2 diabetes (T2D) and HTGW (group A), 24 T2D patients with abdominal obesity (higher waist) and normal Tg (group B) and 20 non obese T2D patients without HTGW (group C).

Methods: CRP levels were detected by ELISA method, GSH-Px and SOD activity were detected by spectrophotometry, total cholesterol (Ch), HDL-Ch, LDL-Ch and Tg levels by enzymatic methods and the insulin resistance (IR) was assessed by using HOMA-IR (calculated from basal insulin levels determined by RIA and fasting glucose levels determined by glucosooxidase method).

Results: We found significantly higher hs-CRP level in group A compared to group B (6.97±2.01 vs 4.72±2.01 mg/l; p<0.05), being also higher in group A vs group C (0.98±0.21 mg/l; p<0.05). Simultaneously, total Ch was significantly higher in group A vs B (6.36 ±0.22 vs 5.44±0.26; p<0.01) while we could not significant differences in LDL-Ch between groups A and B. However, HDL-Ch level was significantly lower in group A vs B (1.05±0.4 vs 1.22±0.08; p<0.05), being the highest in group C (1.45±0.08, p<0.001 vs group A and B). Also, Tg/HDL ratio was significantly higher in group A (3.06±0.21) in comparison to group B (2.22±0.09) and C (0.85±0.12); p<0.001 vs group A and B. On the other hand, we found significantly lower SOD values in group A vs B (913.6±24.33 vs 992.06±49.83; p<0.05), and also when we compared groups A and C (1023.40±29.39, p<0.05), but we could not find any differences in GPX values among groups. At the same time, we found that HOMA-IR was significantly higher in group A vs group B (9.80±1.79 vs 7.72±1.10, p<0.05) and in group C (7.39±2.10, p<0.05), while we could not find differences in HOMA-IR between groups B and C.

Conclusions: Our results signify that presence of HTGW phenotype in T2D, as a marker of visceral obesity, is strongly associated with marked atherosclerosis risk profile, especially at the level of inflammation, reverse cholesterol metabolism and antioxidative enzyme activity. The results also suggest that in this phenotype detected higher IR might be exereting its atherogenic effect partly on the level of the changes in antioxidative defence.

P 15: Low serum levels of L-Selectin as markers of silent myocardial ischemia and endothelial dysfunction in type 2 diabetic patients

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Introduction: In a pilot study we previously suggested that a low serum level of soluble L-Selectin, a protein involved in leucocyte adhesion, might be a marker of coronary artery disease in type 2 diabetic patients (T2D). The aim was to confirm this result in a larger cohort and to explore the association with endothelial dysfunction.

Patients and Methods: L-Selectin was measured in 364 (230 men) asymptomatic patients with T2D for 13.3±7.0 years, 59.9±8.5 years old, with at least one associated cardiovascular risk factor: hypertension 77.1%, dyslipidemia 70.8%, smoking 22.8%, incipient nephropathy 40.8%, peripheral occlusive arterial disease 13.0%, cardiac autonomic neuropathy (assessed on three standard tests) 74.0%. Silent myocardial ischemia (SMI) was detected by stress myocardial scintigraphy in 135 patients, and 45 of them had significant coronary stenoses on angiography.

Results: L-Selectin levels were lower in the patients with than in those without SMI (788±218 vs 853±244 ng/ml, p<0.05), even after adjustment on age and gender. They were not associated with coronary stenoses (without/with: 831±230 vs 828±280 ng/ml). In multivariate analysis including age and L-Selectin to predict SMI, low levels of L-Selectin were predictive of SMI in the total cohort (odds ratio 15.6 [2.1-125.0], p<0.01) and in the patients without coronary stenoses (33.3 [2.7-333.3], p<0.01). L-Selectin correlated negatively with log 24-hour albuminuria (r=-0.157, p<0.05). L-Selectin levels were the lowest in the patients with both hypertension and cardiac autonomic neuropathy.

Conclusion: Serum levels of L-Selectin are low in T2D patients with SMI. This change may account for leucocytes adhesion on activated endothelium, as suggested by the negative correlation between L-Selectin and albuminuria. The association hypertension - cardiac autonomic neuropathy may play a role in endothelium dysfunction.

P 16: Role of short-term and advanced glycation end products in arterial stiffness in diabetes and prediabetes

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Background and aims: Advanced Glycated Endproducts (AGEs) can be estimated by measuring cutaneous autofluorescence (AF). AGEs are increased in type 1 diabetic patients and have been shown to predict cardiovascular disease. Arterial stiffness is a cardiovascular risk integrator, and experimental data suggest that AGEs may play a role in arterial ageing and stiffness. Our objective was to examine the relationship between AGEs, HbA1c and arterial stiffness in type 2 diabetes and prediabetes.

Materials and Methods: Since april 2012 we have included 68 patients with a mean age of 50.8±13.5 years and a mean BMI of 39.6±6.7 kg/m². Twenty-eight patients had known or incipient hypertensive disease (HTgW), 17 patients were diabetic patients (T2D). The aim was to confirm this result in a larger cohort and to explore the association with endothelial dysfunction.

Patients and Methods: L-Selectin was measured in 364 (230 men) asymptomatic patients with T2D for 13.3±7.0 years, 59.9±8.5 years old, with at least one associated cardiovascular risk factor: hypertension 77.1%, dyslipidemia 70.8%, smoking 22.8%, incipient nephropathy 40.8%, peripheral occlusive arterial disease 13.0%, cardiac autonomic neuropathy (assessed on three standard tests) 74.0%. Silent myocardial ischemia (SMI) was detected by stress myocardial scintigraphy in 135 patients, and 45 of them had significant coronary stenoses on angiography.

Results: L-Selectin levels were lower in the patients with than in those without SMI (788±218 vs 853±244 ng/ml, p<0.05), even after adjustment on age and gender. They were not associated with coronary stenoses (without/with: 831±230 vs 828±280 ng/ml). In multivariate analysis including age and L-Selectin to predict SMI, low levels of L-Selectin were predictive of SMI in the total cohort (odds ratio 15.6 [2.1-125.0], p<0.01) and in the patients without coronary stenoses (33.3 [2.7-333.3], p<0.01). L-Selectin correlated negatively with log 24-hour albuminuria (r=-0.157, p<0.05). L-Selectin levels were the lowest in the patients with both hypertension and cardiac autonomic neuropathy.

Conclusion: Serum levels of L-Selectin are low in T2D patients with SMI. This change may account for leucocytes adhesion on activated endothelium, as suggested by the negative correlation between L-Selectin and albuminuria. The association hypertension - cardiac autonomic neuropathy may play a role in endothelium dysfunction.