

Clinical – Obesity, Diabetes, Metabolic Syndrome

P380

RELATIONSHIPS BETWEEN BLOOD PRESSURE AND INDICATORS OF OBESITY IN URUGUAY

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The objective of this study was to evaluate how systolic (S) BP, diastolic (D) BP, body mass index (BMI) and waist-to-hip ratio (WHR) correlate with each other in the population of Uruguay aged above 17. Various cardiovascular risk factors were assessed in a conveniently stratified sample in the city of Minas. The sample represents the population of Uruguay. Correlations between SBP and DBP and WHR are stronger in men than in women.

		n	Mean (95% CI)		Linear correlation <i>r</i> (95% CI)†
			M: males	F: females	
BMI	M:	236	26.7	Kg.m ² (26.1-27.2)	WHR M: 0.39 (0.28-0.49) F: 0.31 (0.21-0.40) M vs. F: <i>P</i> < 0.01* SBP M: 0.45 (0.34-0.55) F: 0.45 (0.36-0.53) DBP M: 0.41 (0.30-0.51) F: 0.41 (0.32-0.50)
	F:	329	27.6	Kg.m ² (27.0-28.3)	
	M vs. F: <i>P</i> < 0.001*				
WHR	M:	239	0.90	(90.0-91.8)	SBP M: 0.37 (0.25-0.47) F: 0.29 (0.18-0.38) DBP M: 0.36 (0.24-0.46) F: 0.17 (0.07-0.28)
	F:	330	83.5	(82.7-84.2)	
	M vs. F: <i>P</i> < 0.001*				
SBP	M:	239	140.7	mmHg (137.8-143.7)	DBP M: 0.76 (0.70-0.81) F: 0.81 (0.77-0.84) M vs. F: <i>P</i> < 0.01*
	F:	335	141.1	mmHg (138.4-143.9)	
	M vs. F: <i>P</i> < 0.01*				
DBP	M:	239	83.9	mmHg (82.1-85.7)	M vs. F: <i>P</i> < 0.01*
	F:	335	83.6	mmHg (82.0-85.3)	
	M vs. F: <i>P</i> < 0.01*				

*Unpaired t-test; two-sided *P* value. † *r* vs. 0: two-sided *P* = 0.002 for the WHR and DBP *r*; two-sided *P* < 0.001 for all the other *r* values.

The reason why fat distribution is a weaker correlate of BP than body weight corrected for height in Uruguayan adult women, but not in men, is not readily apparent and merits specific research.

P381

SERUM LIPID PROFILE AND THE MAIN PARAMETERS OF PLATELET MEMBRANES IN PATIENTS WITH METABOLIC SYNDROME AND CORONARY HEART DISEASE

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We compared the lipid profile in 22 men with metabolic syndrome (MS) and coronary heart disease (CHD) and 20 men with MS without CHD. 42 subjects with MS (men, mean age 52,3±1,1 years) were included in this study. The main signs of MS such as diabetes mellitus (type 2), satisfactorily controlled by oral hypoglycemic agents, abdominal obesity (BMI ≥ 29 kg/m², waist-to-hip ratio ≥ 0.9), arterial hypertension and dyslipidemia (HDL cholesterol level < 35 mg/dl, triglyceride (TG) level > 200 mg/dl, total cholesterol level > 200 mg/dl) were registered in all patients. Subjects with the MS were grouped according to the absence or presence of CHD (stable angina). Patients of both groups had a similar age, diastolic BP, BMI, duration of diabetes and fasting glycaemia. Plasma lipids, apolipoproteins and the main parameters of lipid phase of platelet membranes were thus assessed. Data were evaluated by non-parametric statistical analysis. The patients with MS and CHD differed in particular by a lower HDL cholesterol (*p*=0,047) and its related apo A₁ levels (*p*=0,033). The men with MS and CHD had also significantly higher (*p*=0,041) LDL concentration and LDL cholesterol/HDL cholesterol ratio (*p*=0,007). The groups did not statistically differ in fasting levels of TG, total cholesterol, Lp (a) and apo B. Total cholesterol level in platelet membranes was comparable between the two groups of patients with MS, but was significantly increased in both groups compared with control subjects.

P382

INSULIN-RESISTANCE AND TRIGLYCERIDES AS INDEPENDENT PREDICTORS OF THE EARLY MACROVASCULAR INVOLVEMENT IN TYPE 2 DIABETIC PATIENTS

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In Type II Diabetes, microvascular complications are related mainly to hyperglycemia, while macrovascular disease seems to depend on lipids abnormalities. Insulin-resistance (IR) provides a unifying hypothesis accounting for the spectrum of metabolic fingerprints.

Aim of the study : to assess the role of IR in the early large artery involvement in Type II Diabetes.

Methods : 18 Type II diabetics under hypoglycemic therapy without clinical cardiovascular or cerebrovascular disease were studied (age 61 ± 2 , disease duration 7 ± 1 years, body mass index 27.4 ± 0.5 kg/m², HbA1c $6.9 \pm 0.3\%$, blood pressure $132 \pm 3/74 \pm 2$ mmHg). Insulin sensitivity (IS) was assessed by 2-hr euglycemic hyperinsulinemic (40 mU/min/m²) clamp. Intima-media thickness (IMT) and diameter of the common carotid artery (CCA) were measured by 2D echo. CCA compliance was determined from simultaneously recorded CCA diameter (Wall Tracking System) and finger arterial pressure, and expressed as area under the compliance/pressure curve [CCA(AUC)] over a given pressure range (70-130 mmHg).

Results : Insulin stimulated glucose uptake (M) was 33 ± 3 mmol/min/ per kg of free fatty mass. With reference to our control population, 9 patients were insulin-sensitive (IS) (M= 45 ± 7 mmol/min/kg), and 9 IR (M= 22 ± 4 mmol/min/kg). Compared to the IS group, IR patients had lower CCA(AUC) (0.354 ± 0.036 vs 0.491 ± 0.044 (mm²/mmHg*10⁻³)*mmHg, $p=0.02$) and higher fasting insulin (19.5 ± 2.8 vs 8.8 ± 1.1 mU/ml, $p < 0.002$) and triglycerides

(161 ± 17 vs 102 ± 8 mg%, $p < 0.05$). Fasting glucose, HbA1c, body mass index, serum cholesterol, age, blood pressure, CCA IMT and diameter were similar between groups. In univariate analysis, CCA(AUC) correlated directly with M ($r=0.61$, $p < 0.02$) and inversely with triglycerides and insulin ($r= -0.55$ and -0.51 ; $p < 0.05$ for both), whereas IMT correlated inversely with HDL-cholesterol ($r= -0.51$, $p < 0.05$). By multivariate analysis, age, M and triglycerides remained independently associated with CCA(AUC).

Conclusions : In Type II well controlled diabetic patients, IR is associated with an increased CCA stiffness, and diabetic dyslipidemia appears the main determinant of the early functional and structural large artery involvement.

P383

THE ROLE OF ANTAGONISTS OF PPAR-GAMMA IN TYPE 2 DIABETES

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Introduction : This study evaluates the efficacy of Rosiglitazone, an oral anti-diabetic antagonist of PPAR- γ , in the treatment of type 2 diabetes (DM-2), and the impact of treatment on blood pressure (BP) and the lipid-fibrinolytic profile.

Materials and Methods: We studied 18 untreated patients with DM-2 (10 men), 56.4 ± 7.4 years of age and body mass index of 29.0 ± 0.9 kg/m², with HbA1c $< 7.2\%$. Patients received 4-8 mg/day of Rosiglitazone for 16 weeks. Clinic and biochemistry evaluations as well as 24-hour ambulatory BP monitoring were performed before and after treatment.

Results: There was an improvement in the metabolic control of patients with DM-2, with a 1% reduction in HbA1c ($P=0.001$), a decrease of 42 mg/dl in glucose ($P < 0.001$), and a tendency to improve the lipid profile. There was a 4.5 U/ml reduction (-21% ; $P < 0.01$) in plasminogen activator inhibitor, and a 2.4 ng/ml reduction (-25% ; $P < 0.01$) in tissue plasminogen activator. Results also indicate significant ($P < 0.001$) reductions in the 24-hour, diurnal and nocturnal means of systolic/diastolic BP ($-11.9/-5.7$, $-12.0/-5.7$, and $-11.8/-6.5$ mm Hg, respectively).

Conclusions: Rosiglitazone is highly efficient for the metabolic control of DM-2, and regulates and improves other components of the hypertensive metabolic syndrome, reducing BP and optimizing the cardiovascular risk of these patients.