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P2.05: ARTERIAL WALL FUNCTION IN PATIENTS WITH CORONARY HEART DISEASE AND DYSLIPIDEMIA, COMPARATIVE EFFICACY OF EZETIMIBE, STATINS AND THEIR COMBINATION

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$p < 0.001$), while CAVI was not significantly associated with MACE (RR = 1.93, CI 95% = 0.99-3.39, $p = 0.055$). Multivariate Cox analyses demonstrated that independent of age, mean BP and other risk factors, baPWV was a predictor of MACE. The sensitivity of baPWV was 71%, and its specificity was 67%. CONCLUSIONS: baPWV is the only significant predictor of MACE for men with CAD, while CAVI does not independently relate to meaningful 3.5 year prognosis in this cohort.

P2.03

NON INVASIVE EVALUATION OF ATHEROSCLEROTIC PLAQUES BEHAVIOR IN HUMAN CAROTID ARTERIES: INDICATORS OF PLAQUE VULNERABILITY?

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Introduction: The arterial wall, like a filter, buffers pulsatility of pressure and flow generated by cardiac activity, minimizing mechanical damage to the arterial wall. Development and progression of vascular disease involve changes in the structure, viscosity (V) and elasticity (E) of arteries, the main determinants of arterial wall buffering capacity (BC). Specific changes in V, E and BC of Atheromatous plaques (AP) and the neighbouring wall have not been fully characterized.

Objectives: To characterize V, E and BC of human carotid arteries with AP.

Methods: We selected 7 subjects (63 ± 8 y.o.) with an echography of neck vessels (B mode and doppler, 10 mHz probe) similar baseline clinical and biochemical characteristics and AP in a common carotid artery (CCA). Five consecutive segments of the CCA, targeting the AP were evaluated (S1-S5 from proximal to distal, S3 the middle part of the plaque, S2 and S4 the proximal and distal shoulders). The instantaneous diameter and the signal of carotid pressure, calibrated with the brachial pressure (using a sphygmomanometer), were obtained and carotid Pressure / Diameter ratio, V, E and BC calculated.

Results: AP exhibited changes in V, E and BC. Biomechanical gradients were detected within the AP, being S3 the stiffer region (increased E, less V and BC, $p < 0,05$)

Conclusion: Carotid atheromatous plaques present characteristic changes in V, E and BC compared to the neighbouring wall (stiffer than weaker). Future studies of changes in plaques V, E, BC and vulnerability according to patient's clinical condition and plaque geometry and composition are needed.

P2.04

SINGLE-DOSE EFFECTS OF ISOSORBIDE MONONITRATE ALONE OR IN COMBINATION WITH LOSARTAN ON CENTRAL BLOOD PRESSURE

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Antihypertensive drugs can have different effects on central and brachial blood pressures and it has been suggested that these differences are relevant to outcomes. In particular, nitric oxide donors have marked acute effects on central blood pressure but have not been assessed when administered acutely with renin-angiotensin system blockade. Thirteen patients with high-normal to mild hypertension were randomized to a sequence of 5 single-dose treatments using a double-blind, balanced crossover study design. Treatments consisted of angiotensin receptor blocker (ARB) losartan 100 mg, isosorbide mononitrate (ISMN) 60 mg, losartan 100 mg + ISMN 15 mg, losartan 100 mg + ISMN 60 mg, and placebo. Central and brachial blood pressures were measured throughout 10 hours after the single-dose treatments. Treatment periods were separated by ≥ 4 days. Mean placebo-subtracted decrease from baseline in augmentation index (AIx), a parameter of central pressure, was approximately 1% for losartan 100 mg, 26% for ISMN 60 mg, 19% for losartan 100 mg + ISMN 15 mg, and 24% for losartan 100 mg + ISMN 60 mg. Whether administered with losartan 100 mg or alone, ISMN lowered mean AIx demonstrating that acute effects of a nitrate donor are much larger than those of an ARB even when administered with an ARB. Differences from placebo were statistically significant except for losartan 100 mg. A single dose of ISMN alone or when added to losartan 100 mg markedly lowered AIx indicating AIx is a good biomarker of acute hemodynamic effects of nitric oxide in patients with high-normal to mild hypertension.

P2.05

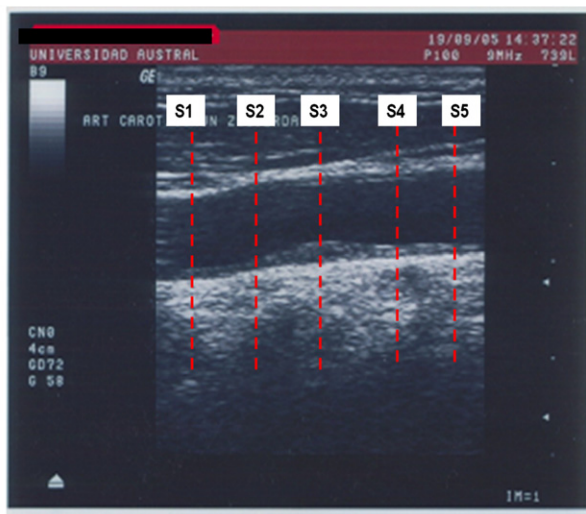
ARTERIAL WALL FUNCTION IN PATIENTS WITH CORONARY HEART DISEASE AND DYSLIPIDEMIA, COMPARATIVE EFFICACY OF EZETIMIBE, STATINS AND THEIR COMBINATION

M. I. Tripoten, O. A. Pogorelova, M. Y. Zubareva, V. V. Kukharchuk,

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Purpose: The aim of this study was to compare efficacy of treatment by ezetimibe (EZ), starting doses of statins and their combination on lipids and



arterial wall function in patients with documented coronary heart disease and dyslipidemia in 24 weeks' randomized controlled trial.

Methods: 60 patients (32 men, 28 women, age 61 ± 8) were randomized into 4 groups with equal number of pts ($n = 15$). In each group pts received drugs as monotherapy: EZ 10mg, simvastatin 10mg, atorvastatin 10mg, rosuvastatin 10mg. After 12 weeks, if LDL-cholesterol (LDL-C) level was more than $2,5 \text{ mmol/l}$ in statins monotherapy treatment, EZ 10 mg was added. LDL-C, stiffness parameter β , compliance (CC) and distensibility (DC) coefficients were determined by high-resolution ultrasound before and after 12 and 24 weeks of treatment. For analysis pts were reform in 3 groups: 1 - pts taken only EZ ($n = 15$), 2 - pts taken only statins ($n = 19$), 3 - pts taken combination statins and EZ ($n = 24$).

Results: After 12 and 24 weeks of treatment the level of LDL-C significantly decreased in all groups. Stiffness, CC and DC also was significantly changed (in table below, % changes from baseline).

Conclusions: Arterial stiffness, compliance and distensibility are significantly changed after 12 and 24 weeks of treatment in all groups. We did not find significantly intergroup differences of these parameters.

weeks	EZ		Statins		Statins and EZ	
	12	24	12	24	12	24
LDL-C, %	- 16,4 [^]	- 11,2 [°]	- 34,7*	- 43*	- 25 [°]	- 45,7 [^]
β , %	- 20*	- 32,5*	- 22,6*	- 29*	- 11,4*	- 20*
CC, %	+10 n/s	+ 26 [°]	+5,5 n/s	+ 18 [°]	+ 5,6 n/s	+ 25 [°]
DC, %	+ 21*	+ 41*	+ 13 [^]	+ 27*	+ 11 [°]	+ 20 [°]

* - $p < 0,001$, [^] - $p < 0,01$, [°] - $p < 0,05$, n/s - no significantly.

P2.06

EFFECT OF PARICALCITOL AND ALFACALCIDOL ON ARTERIAL STIFFNESS IN CHRONIC HEMODIALYSIS PATIENTS

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Background: The incidence of cardiovascular disease in hemodialysis (HD) patients is high. Disorders of the mineral metabolism seem to play a critical role. Epidemiological studies have found an increased survival in HD patients receiving vitamin D receptor analogs (VDRA) and a difference in survival depending on kind of VDRA used. Augmentation index (Aix) and pulse wave velocity (PWV) are strong predictors of cardiovascular mortality in hemodialysis patients. Whether treatment with VDRA influence on Aix and PWV in hemodialysis patients are unknown.

Methods: Eight subjects (6 male) mean(SD) age $74.3(10.4)$ with secondary hyperparathyroidism receiving chronic hemodialysis therapy were randomized to 16 weeks of treatment with paricalcitol or alfacalcidol (6/2). A wash out period of six weeks preceded the treatment. Aortic stiffness was evaluated with aorticPWV and wave reflections with Aix by applanation tonometry (Sphygmocor) at the beginning and at the end of the treatment period.

Results: Overall treatment with VDRA seemed to decrease heart rate adjusted Aix ($-14.2 \pm 7.7\%$, n.s.), PWV were unchanged ($0.8 \pm 5.1\%$).

There was a significant difference in the effect of the two VDRA on PWV. Paricalcitol decreased PWV while alfacalcidol increased PWV (-4.9 ± 4.7 vs. $17.6 \pm 2.0\%$; $p < 0.05$). There were not any difference in changes in Aix between paricalcitol treated patients or alfacalcidol treated patients (-13.1 ± 6.4 vs. $-17.6 \pm 17.4\%$; n.s)

Conclusion: VDRA tends to decrease Aix. Paricalcitol improve whereas alfacalcidol worsens PWV. These findings are coherent with present epidemiologic studies. Larger studies are needed to confirm these results.

P2.07

DOES ROSUVASTATIN MEDIATES A BETTER CONTROL OF CENTRAL BLOOD PRESSURE IN TREATED HYPERTENSIVES PATIENTS?

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Introduction: The pleiotropic antiatherosclerotic effects of statins have been widely described and were proposed to mediate a potential antihypertensive action. However, statin indication in hypertensives with subclinical atherosclerosis is still controversial.

Based on these observations, we decided to evaluate the effect of rosuvastatin on central arterial pressure and arterial stiffness by using noninvasive tests.

Aim: To evaluate rosuvastatin effects on: a) central and peripheral blood pressure, aortic and peripheral augmentation index and b) arterial stiffness.

Material and methods: We included 79 consecutive essential hypertensives under stable antihypertensive drug treatment. All patients were subjected to a 3-month intensive diet and physical activity period; and were allocated to: a) rosuvastatin (20 mg/day, OD) or b) no rosuvastatin treatment. The following determinations were conducted at the beginning and after a 1 year follow-up period: Total/HDL/LDL cholesterol; triglycerides; pulse wave velocity (Complior[®]), central blood pressure and Augmentation Index (Tensioclinic[®]).

Results: No differences in basal population characteristics were found between the two groups. At follow-up the rosuvastatin group showed a significant reduction in all the parameters studied (table 1 and figure 1).

Conclusion: These findings suggest that in stabilized hypertensives subjects, rosuvastatin is associated with an antihypertensive effect on top of the specific antihypertensive treatment. This effect is predominant for central blood pressure variables and is accompanied with a significant improvement in arterial stiffness.

Statin effects on peripheral artery distensibility may mediate a secondary relief of aortic load conditions. Further studies are needed to evaluate the potential implication of these findings for hypertensive patients.

P2.08

ARE CENTRAL PULSE WAVE INDICES SUPERIOR OVER BRACHIAL BLOOD PRESSURE IN PREDICTION OF LEFT VENTRICULAR MASS IN YOUNG MEN?

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Objective: Central BP (cBP) stronger correlates with target organ damage than casual brachial BP. pportive data for superiority of cBP over ambulatory BP. The aim of the study was to evaluate correlation between left ventricular mass index (LVMI) and central, clinic and ambulatory BP in young men.

Methods: 196 male subjects 18-25 ($21 \pm 1,4$) years with a history of casual BP elevation underwent routine physical, laboratory and instrumental tests, ABPM and pulse wave analysis (Sphygmocor, AtCor, Australia). Arterial hypertension (AH) was considered sustained if both clinic BP and ABPM values exceeded recommended diagnostic thresholds. Observed/predicted LVM ratio (OPLVMR) was assessed using de Simone et al. approach. Spearman analysis was performed to assess correlation between LVMI and OPLVMR.

Results: 24-h and daytime SBP ($r = 0,30$ and $r = 0,31$, $p < 0,001$) slightly stronger than clinic SBP ($r = 0,27$, $p < 0,001$) correlated with LVMI. Correlation between cPP and LVMI was $r = 0,26$, $p = < 0,001$. No significant correlation was found between clinic BP and OPLVMR. Stronger correlation with OPLVMR was observed for 24-h and daytime SBP ($r = 0,32$, $p = 0,001$) than for cPP ($r = 0,25$, $p = 0,01$). In patients with sustained AH ($n = 114$) no significant correlation between clinic BP, ABPM or cPP and LVMI or OPLVMR was found but negative significant correlation was observed between PP amplification and LVMI ($r = - 0,20$, $p = 0,03$) and positive with PP Aix $r = 0,21$, $p = 0,02$).

Conclusion: cBP seems not to be superior ABPM for LVMI and OPLVMR prediction. Correlations between PP amplification and Aix and LVMI in subjects with sustained AH may confirm impact of early changes of arterial stiffness for target organ damage in young hypertensive population.

P2.09

MATERNAL CENTRAL BLOOD PRESSURE, WAVE REFLECTION AND ARTERIAL STIFFNESS IN COMPLICATED PREGNANCY

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Objective: Pregnancy is associated with profound alterations in the maternal cardiovascular system. The aim of the study was to assess using applanation tonometry (AT) the maternal central aortic blood pressures (BP), wave reflection and arterial stiffness in pregnancy complicated with threatened abortion.

Methods: Radial AT (Sphygmocor; AtCor Medical) was performed in 55 women (mean age $26,8 \pm 5,6$ years) with singleton pregnancies at 5 to 22 weeks of gestation. All women had pregnancies complicated by threatened abortion. Central BP and augmentation index (Aix) - a measure of arterial wave reflection - were assessed using pulse wave analysis of the radial artery waveform and a validated transfer function. Pulse wave velocity (PWV) measurement on carotid-femoral segment was performed to evaluate arterial stiffness. Brachial BP measured with mercury sphygmomanometer by