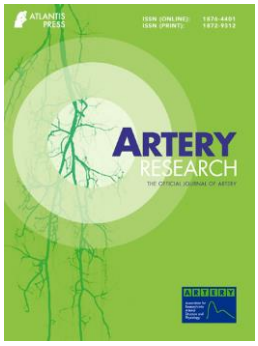

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P7.12: ARTERIAL STIFFNESS IN PATIENTS WITH HEART FAILURE OF ISCHEMIC AND NON-ISCHEMIC AETIOLOGY

Y. Osmolovskaya, A. Glechan, A. Skvortsov, V. Mareev

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P7.11
HIGH ANKLE-BRACHIAL INDEX IS ASSOCIATED WITH INCREASED AORTIC PULSE WAVE VELOCITY: THE CZECH POST-MONICA STUDY

P. Wohlfahrt [1], M. Ingrischová [2], D. Palouš [1], A. Krajcoviechová [1], J. Seidlerová [3], M. Dolejšová [3], M. Galovcová [1], J. Bruthans [1], V. Adámková [1], M. Jozífová [1], J. Filipovský [3], R. Cífková [1].
[1]*Department of Preventive Cardiology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic*
[2]*2nd Medical Department-Clinical Department of Cardiology and Angiology, 1st Medical Faculty, Charles University, Prague, Czech Republic*
[3]*Center of Preventive Cardiology, 2nd Department of Internal Medicine, Charles University, Medical Faculty, Pilsen, Prague, Czech Republic*

Ankle brachial index (ABI) has increasingly been used in general practice to identify patients with low ABI at high cardiovascular risk. However there is no consensus on the clinical significance of high ABI. The aim of our study was to compare large artery stiffness as a marker of cardiovascular risk in patients with low (<1.0), normal (1.0-1.4) and high ABI (>1.4).
Methods: 911 patients from the Czech post-MONICA study (a randomly selected 1% representative population sample, mean age 54 ± 13.5 years, 47% of men) were examined. ABI was measured using a handheld Doppler and aortic pulse wave velocity (aPWV) using the Sphygmocor device.
Results: Of 911 patients, 28 (3.1%) had low ABI and 23 (2.5%) high ABI. There was a U-shaped association between aPWV and ABI. aPWV was significantly higher in patients with low and high ABI compared with normal ABI group (11.1 ± 2.8, 8.3 ± 2.3, $p < 0.001$; 10.8 ± 2.5, 8.3 ± 2.3, $p < 0.001$) and it did not differ between patients with high and low ABI (11.1 ± 2.8, 10.8 ± 2.5, $p = 0.86$). In the stepwise multiple regression analysis low and high ABI were independent predictors of increased aPWV together with age, central systolic blood pressure, heart rate, BMI and hypertension.
Conclusion: This is the first study showing increased aortic PWV in patients with high ABI pointing to increased cardiovascular risk in this group.

P7.12
ARTERIAL STIFFNESS IN PATIENTS WITH HEART FAILURE OF ISCHEMIC AND NON-ISCHEMIC AETIOLOGY

Y. Osmolovskaya, A. Glechan, A. Skvortsov, V. Mareev.
Russian Cardiology Research and Production Complex, Moscow, Russian Federation

Increased arterial stiffness abnormal ventricular-vascular coupling have increasingly been recognized as playing an important pathophysiologic role in HF, both systolic and with normal ejection fraction. Aim: to assess and compare arterial stiffness, central blood pressure parameters in systolic heart failure patients with ischemic and non-ischemic aetiology. Methods: 2 groups of patients with systolic (EF < 40%) congestive heart failure (CHF) I-IV functional classes NYHA were enrolled in the study: 1) ischemic aetiology group was respresented by 60 patients with ischemic heart disease: Age, years 59(10), BMI (kg/m^2) 28,41, CHF 36(10,4) months, FC NYHA 8(12%)/33(55%)/11(27%)/3(6%); EF 33,3%; 100%sinus rhythm; SBP 124(17,3)mmHg, DBP 77,3(9,5)mmHg; therapy: diuretics 42(76%), BB/ACEi 100%.
2) non-ischemic aetiology group - 15 patients with dilated cardiomyopathy: Age, years 42,2 (9,4), BMI (kg/m^2) 28,5, CHF 38(7,2) months, FC NYHA 4(26%)/6(42%)/4(26%)/1(6%); EF 28,2%; 100%sinus rhythm; SBP 119(9,24)mmHg, DBP 77,5(8,1)mmHg, therapy: diuretic 12(80%), BB/ACEi 100%.
Carotid-femoral pulse wave velocity (c-f PWV) was measured as index of arterial stiffness, central blood pressure parameters: mean arterial pressure, pulse pressure, aortic augmentation index, using applanation tonometry (Sphygmocor). Results:C-f PWV was lower in non-ischemic group compared with ischemic group (6,8(6,4;7,8) vs. 9,0(7,5;10,0) m/sec;$p < 0.005$). Central BP parameters (MAP,CPP,AIX) didn't differ between 2 selected groups ($p > 0.05$).
Conclusions: Arterial stiffness is increased in patients with ischemic systolic CHF comparing with non-ischemic systolic CHF, that may suggest that arterial stiffness is implicated in the complex of pathophysiology of CHF. The behavior of central blood pressure gemodynamics is common both in ischemic and non-ischemic aetiology groups.

P7.13
THE P22PHOX -640A/G POLYMORPHISM OF NADPH OXIDASE ADVERSELY AFFECTS ENDOTHELIN LEVELS BUT NOT PERIPHERAL AND CENTRAL PRESSURES IN HEALTHY, YOUNG, NORMOTENSIVE INDIVIDUALS

P. Xaplanteris, C. Vlachopoulos, C. Vassiliadou, K. Baou, I. Dima, D. Kardara, C. Stefanadis.
1st Department of Cardiology, Hippokrateion Hospital, Athens Medical School, Athens, Greece

Purpose: The NADPH oxidase system produces superoxide in the vessel wall and its -640A/G polymorphism is associated with coronary artery disease incidence in young individuals. We investigated the role of this polymorphism on peripheral/aortic pressures (PP, AoP), and endothelin-1 (ET-1) levels, in young normotensive individuals.
Methods: 153 healthy normotensives were studied (95 males, age 41 years). The -640A/G polymorphism in the p22phox promoter was typed by DraIII digestion of specific polymerase chain reaction products amplified from genomic DNA. The AA, AG and GG genotypes were determined. PP were measured by a sphygmomanometer; AoPs were measured using a validated device. ET-1 levels were determined by ELISA. Comparisons were performed using the ANOVA for multiple comparisons followed by Bonferonni correction.
Results: The prevalence of AA, AG and GG genotypes was 26.8%, 49% and 24.2%. Compared to AG subjects, AA and GG subjects had significantly higher levels of ET-1 (AG: 1.69 ± 3.50 vs AA: 4.35 ± 6.62 vs GG: 2.70 ± 5.28 pg/mL, $p < 0.05$). However, neither PPs nor AoPs differ; systolic PP (AG: 113.8 ± 13.2 vs AA: 116.9 ± 11.5 vs GG: 116.4 ± 16.1 mmHg, $p = NS$), diastolic PP (AG: 70.5 ± 11.2 vs AA: 71.7 ± 9.2 vs GG: 71.1 ± 12.4 mmHg, $p = NS$), systolic AoP (AG: 103.9 ± 12.8 vs AA: 105.1 ± 11.3 vs GG: 105.9 ± 16 mmHg, $p = NS$), diastolic AoP (AG: 71.5 ± 11.2 vs AA: 72.7 ± 9.3 vs GG: 72.2 ± 12.6 mmHg, $p = NS$).
Conclusion: The -640A/G polymorphism of the p22phox subunit of NADPH oxidase is associated with levels of ET-1, but neither with PP nor with AoP in young, normotensive individuals. Heterozygosity is associated with lower ET-1 levels.

Epidemiology 4

P8.01
PREDICTORS OF AORTIC STIFFENING IN ELDERLY SUBJECTS: RESULTS OF A NINE-YEAR FOLLOW-UP

J. Seidlerová, J. Filipovský, O. Mayer, Jr., M. Dolejšová.
Internal Department II, Faculty of Medicine in Pilsen, Pilsen, Czech Republic

Objective: To investigate predictors of increase in aortic pulse wave velocity (aPWV) in elderly subjects free from overt cardiovascular disease.
Design and Method: The present study included 90 lecture attendees (''university of 3rd age'') who were examined at baseline and after a median follow-up of 9.5 years, including the aPWV measurement using Sphygmocor. At baseline, they were aged 66.9 ± 5.1 years, 80.0% were women, 37.8% of subjects had arterial hypertension, 5.6% diabetes mellitus, and 82.2% hyperlipidemia. We used multiple linear regression analyses to assess predictors of change in aPWV. As independent covariates we considered: sex, age, body mass index, mean arterial pressure (MAP), heart rate, fasting glucose, total cholesterol, smoking, alcohol intake and observer.
Results: The aPWV increased from 9.4 to 10.3 m/s; $P = 0.022$. While accounting for covariates, aPWV increased significantly with three factors: a 1—standard deviation change in heart rate (8.5 bpm), in MAP (12.4 mm Hg) and in fasting glucose (0.93 mmol/l) were associated with increased aPWV amounting to 0.76 m/s (95% CI: 0.23 to 1.30; $P = 0.0061$), 0.71 m/s (95% CI: 0.20 to 1.23; $P = 0.0079$) and 0.57 m/s (95% CI: 0.08 to 1.07; $P = 0.024$), respectively.
Conclusions: In elderly subjects without manifest cardiovascular disease, mechanical load, as demonstrated by the positive association with heart rate and MAP, plays a major role in the aortic stiffening. Among metabolic factors, glucose concentration but not lipid parameters is associated with increase in aortic stiffness, possible via glycation of connective tissue within arterial wall.