



## Artery Research

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### **P11.23: ARTERIAL STIFFNESS AND INTIMA-MEDIA THICKNESS AS EARLY MARKERS OF VASCULAR ALTERATIONS IN PATIENTS WITH METABOLIC SYNDROME**

N. Spasova, E. Kinova, D. Somleva, T. Kourteva, A. Goudev

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evaluate arterial wall parameters – IMT, distensibility and stiffness of CCA and cardiovascular risk factors (systolic and diastolic blood pressure (BP), body mass index (BMI) and smoking) – in hypertensive adolescents (HA) and normotensive adolescents (NA).

**Methods:** Arterial wall structural and functional parameters were measured using echo-tracking method (Art. Lab system). BP was measured using BP monitor (Schiller ARGUS VCM). Twenty nine HA (17-18 yr. old, systolic BP  $\geq 140$  mmHg, diastolic BP  $\geq 90$  mmHg) and fifty five NA were included. Height, weight, BMI, and smoking distribution were obtained from each group. All analysis was performed using the Statistical Analysis System, SAS (version 8.1).

**Results:** Hypertensive adolescents had significantly greater values of IMT ( $494 \pm 84.69 \mu\text{m}$  vs.  $465 \pm 65.2 \mu\text{m}$ ), distensibility ( $767 \pm 121.94 \mu\text{m}$  vs.  $692 \pm 149.01$ ) and carotid stiffness ( $2.28 \pm 0.8$  vs.  $1.86 \pm 0.76$ ) ( $p < 0.05$ ) compared with normotensive adolescents. They also had significantly higher weight, height, BMI and systolic blood pressure ( $p < 0.05$ ). No significant differences were found between smokers and non-smokers.

**Conclusions:** Disturbance of arterial wall parameters can be found in adolescents. Hypertensive adolescents had significantly greater values of IMT, distensibility and stiffness of common carotid artery than normotensive adolescents. Short period of smoking had no significant impact on CCA parameters.

#### P11.21

##### PARAMETERS OF LOCAL AND SYSTEMIC ARTERIAL STIFFNESS IN PATIENTS WITH ARTERIAL HYPERTENSION AND MODERATELY MARKED CAROTID ATHEROSCLEROSIS WITH AND WITHOUT DIABETES

T. V. Vakhovskaya, T. V. Balakhonova, M. M. Loukyanov, O. A. Pogorelova, S. A. Boytsov

*Russian Cardiology Research Centre, Moscow, Russian Federation*

**Aim:** To evaluate parameters of local and systemic arterial stiffness in patients with arterial hypertension (AH) and moderately marked carotid atherosclerosis (CA) with/without diabetes.

**Materials and methods:** Seventy-one patients (53 female) with AH (Grade 1-2) and CA (stenosis 20-55%) were enrolled in the study. Patients with diabetes were included in Group 1 ( $n=29$ ), and patients without diabetes - in Group 2 ( $n=42$ ). Mean age in two groups was  $67.4 \pm 6.5$  vs.  $66.4 \pm 6.9$  ( $p=0.9$ ); stenosis intensity -  $38.3 \pm 9.3\%$  vs.  $33.9 \pm 8.0\%$  ( $p=0.03$ ). Both groups were comparable in sex ratio, incidence of cardiovascular risk factors, duration of AH and diabetes. Local stiffness of carotid arteries was evaluated by means of eTRACKING technology (ALOKA  $\alpha 7$ ). Arterial stiffness parameter "beta-index", elastic modulus (Ep), arterial compliance (AC) and local pulse wave velocity (PWV<sub>local</sub>) were measured. Systemic arterial stiffness (pulse wave velocity, PWV) was evaluated using applanation tonometry (SphygmoCor).

**Results:** eTRACKING results for distal segment of the left common carotid artery (CCA) in Groups 1 and 2 were respectively: beta-index  $11.3 \pm 4.5$  vs.  $9.5 \pm 2.7$  ( $p=0.04$ );  $175.2 \pm 71.3$  vs.  $137.9 \pm 40.8$  ( $p=0.0007$ ). Local stiffness parameters for the distal segment of the right CCA in groups were respectively: beta-index  $10.3 \pm 3.8$  vs.  $8.8 \pm 2.9$  ( $p=0.1$ ); Ep  $158.6 \pm 61$  vs.  $135.3 \pm 39.9$  ( $p=0.09$ ). There were no significant differences of AC and PWV<sub>local</sub> values between groups ( $p > 0.05$ ). PWV in Group 1 was significantly higher than in Group 2 ( $15.3 \pm 3.0$  vs.  $13.0 \pm 2.8$ ,  $p=0.0005$ ).

**Conclusions:** Local and systemic arterial stiffness parameters in patients with AH and moderately marked carotid atherosclerosis were significantly higher in cases of diabetes than in its absence.

#### P11.22

##### LONG-TERM PROGNOSIS OF CORONARY ARTERY CHRONIC TOTAL OCCLUSIONS REVASCULARIZATION

M. A. Maslennikov, Y. A. Karpov, O. V. Cherkavskaya, B. A. Rudenko, A. P. Savchenko

*Russian Cardiology Research-and-Production Complex, Ministry of Health and Social Development of the Russian Federation, Moscow, Russian Federation*

**Background:** The clinical benefit of chronic total occlusions (CTO) recanalization is still being discussed. The aim of our study is to analyse long-term clinical results of CTO recanalisation drug-eluting stent implantation.

**Methods:** Patients were divided into groups: main group(A) consisted of patients with successful revascularization( $n=321$ , mean age  $58 \pm 9$  years) compared with patients(control group B), who received medical therapy( $n=264$ , mean age  $61 \pm 10$  years). The average follow-up was  $1095 \pm 36$  days.

Predictors of survival without coronary events (angina+myocardial infarction+coronary death) and chronic heart failure reoccurrence were analyzed employing Cox proportional hazards model.

**Results:** The frequency of angina and chronic heart failure reoccurrence was lower in the group with successful revascularization of CTO ( $p < 0.05$ ). According to the functional tests, after a period of 3 years of follow-up, the frequency of positive exercise tolerance tests was higher in group B( $p < 0.05$ ). Patients in group A required less antianginal therapy ( $p < 0.05$ ). Analysis of coronary events predictors in both groups revealed that the main factors negatively affecting the long-term prognosis are: patient's age over 65 years and diabetes mellitus ( $p=0.006$ ). The left anterior descending artery lesion ( $p=0.001$ ) is the main factor that increases the risk of heart failure progression in the long run in group B. 3-year survival without coronary events was higher in group A. Survival without progression of chronic heart failure by the end of the 3d-year of observation period was also higher in group A.

**Conclusion:** Revascularization of CTO of coronary arteries is effective and feasible. Endovascular recanalization of CTO with drug-eluting stent implantation can improve the long-term prognosis.

#### P11.23

##### ARTERIAL STIFFNESS AND INTIMA-MEDIA THICKNESS AS EARLY MARKERS OF VASCULAR ALTERATIONS IN PATIENTS WITH METABOLIC SYNDROME

N. Spasova, E. Kinova, D. Somleva, T. Kourteva, A. Goudev  
*UNHAT "Tsaritsa Yoanna - ISUL", Sofia, Bulgaria*

**Background:** Metabolic syndrome (MS) is associated with early abnormalities in arterial wall and an increased risk of cardiovascular diseases. High arterial stiffness and intima-media thickness (IMT) are markers of vascular aging and subclinical organ damage.

**Aim:** To test the possibilities of carotid-femoral pulse wave velocity (PWV), wave reflections, and IMT of the common carotid artery, to identify early vascular alterations in patients with metabolic syndrome.

**Materials and methods:** Ninety nine patients (63 with MS, and 33 controls), were examined. Metabolic syndrome was defined according to National Cholesterol Education Program Adult Treatment Panel III criteria. Patients aged from 45 to 59 years and had no cardiovascular diseases. SphygmoCor system was used for measurement of carotid-femoral PWV, central aortic systolic pressure (CAP) and wave reflections. IMT was measured by B mode ultrasound.

**Results:** Patients with MS had significantly increased PWV ( $9.71 \pm 1.92$  m/s vs.  $7.75 \pm 1.10$  m/s,  $p < 0.0001$ ) and IMT ( $0.65 \pm 0.12$  mm vs.  $0.57 \pm 0.08$  mm,  $p=0.003$ ). There was no statistically significant difference in Augmentation Index between patients with and without MS ( $29.04 \pm 9.68\%$  vs.  $27.61 \pm 6.36\%$ ,  $p=0.501$ ). CAP was significantly elevated in the MS group ( $123.74 \pm 13.39$  mmHg vs.  $117.09 \pm 12.47$  mmHg,  $p=0.047$ ). Among the patients with MS, there were no statistically significant differences in PWV, IMT between groups with and without diabetes mellitus.

**Conclusions:** Patients with metabolic syndrome have increased arterial stiffness and intima media thickness, even in the absence of cardiovascular complications and diabetes mellitus. Early detection of vascular abnormalities may help to improve cardiovascular risk prediction in this group.

#### P11.24

##### RHEUMATOID ARTHRITIS AND CARDIOVASCULAR EVENTS

S. Stropuviene<sup>1,2</sup>, S. Aidietiene<sup>2</sup>, A. Cypiene<sup>1,2</sup>, R. Ruginiene<sup>1,2</sup>, A. Laucevicius<sup>1,2</sup>

<sup>1</sup>State Research Institute Center For Innovative Medicine, Vilnius, Lithuania  
<sup>2</sup>Vilnius University Hospital Santariskiu Clinic, Vilnius, Lithuania

**Objective:** Rheumatoid arthritis (RA) is inflammatory autoimmune disease, which is associated with increased cardiovascular mortality. In this study clinical data were analysed to look for a risk factors for the development of cardiovascular events in RA patients.

**Materials and methods:** The case control study was done between RA patients, who admitted to Rheumatological department and had cardiovascular events history and those, who haven't. Clinical, laboratory tests, arterial stiffness, flow-mediated dilatation measurement were analysed to look for a risk factors for the development of cardiovascular events.

**Results:** 54 patients, who were diagnosed with RA, formed the case control study by disease duration and age. 18 of them had a history of cardiovascular event (myocardial infarction and cerebral stroke were the most common) and 36 were controls (without the event). 90,7% were women. Mean age was  $62,9(7,1)$  years, mean disease duration -  $15,5(10,2)$  years. Patients