P.038: INTERRELATION BETWEEN DYNAMICS OF
CHANGES ENDOTHELIUM-DEPENDENT DILATATION AND
LOCAL RIGIDITY OF THE BRACHIAL ARTERY IN
PATIENTS WITH HYPERLIPIDEAMIA ON A BACKGROUND
OF RECEIPT OF STATINS WITHIN 6 MONTHS

B.D. Koulev, N.V. Sankova, Nuraliev E. Yu, F.T. Ageev

To cite this article: B.D. Koulev, N.V. Sankova, Nuraliev E. Yu, F.T. Ageev (2007) P.038:
INTERRELATION BETWEEN DYNAMICS OF CHANGES ENDOTHELIUM-DEPENDENT
DILATATION AND LOCAL RIGIDITY OF THE BRACHIAL ARTERY IN PATIENTS WITH
HYPERLIPIDEAMIA ON A BACKGROUND OF RECEIPT OF STATINS WITHIN 6 MONTHS,
Artery Research 1:2, 61–61, DOI: https://doi.org/10.1016/j.artres.2007.07.095

To link to this article: https://doi.org/10.1016/j.artres.2007.07.095

Published online: 21 December 2019
DM-1 does not appear to be COX2 mediated or acutely affected by hyperglycemia. Endothelial-independent vascular smooth muscle response in women may be sensitive to COX2 inhibition and warrants further investigation.

P.035

BIOLOGICAL VARIABILITY OF THE ULTRASONOGRAPHIC ASSESSMENT OF ENDOThelial DYSFUNCTION IN CHILDREN WITH HIGH RISK OF MANIFESTATION OF ATHEROSCLEROSIS

P. Jelíňka, F. Stozicky, J. Varvarovska, J. Raceč, O. Mayer Jr., J. Filipovský, L. Trefl. Charles University Hospital, Pilsen, Czech Republic

Background: Subclinical atherosclerosis should be detected before clinical symptoms of vascular complications occur. Varying reproducibility of currently used ultrasonographic methods makes diagnosis of endothelial dysfunction (ED) in children difficult.

Aim of the study: To assess flow mediated dilation (FMD) and deceleration index (DI), based on postocclusion changes in arterial bed in children with familial hypercholesterolemia (FH) and diabetes mellitus of type 1 (DM1). Evaluation of the intradividual variability of FMD and DI should than validate a predictive importance of these methods.

Methods: FH group, n=32, age 14,7(± 2.9) years, DM1 group, n =30, mean age 14.6 (± 1.68) and group of healthy children, n=30, mean age 15.1(±1.74) years were examined. The measurements were performed during the same day period one month apart from each other to assess intradividual variability of FMD and DI with respect to possible diurnal and ovarian cycles.

Results: No significant differences in FMD and DI were found between the FH, DM1 and control groups, the corresponding mean FMDs were 7.31, 7.30 and 6.34% respectively, while DI's 19.78, 16.51 and 21.49 %, respectively.

Conclusion: Statistically nonsignificant difference of FMD and DI between study groups could be partly explained by therapeutic interventions and short duration of DM1. Nevertheless, FMD and DI showed very high intradividual variability, which decrease markedly its reliability to quantify the degree of endothelial dysfunction in children.

☆ Supported by IGA, the Czech Ministry of Health (Nr. 8455-3).
☆☆ Supported by IGA, the Czech Ministry of Health (Nr. 8455-3).

P.036

ASYMMETRIC DIMETHYLARGININE AND OXIDIZED LDL — SENSITIVE BIOCHEMICAL MARKERS OF ENDOThelial DYSFUNCTION IN CHILDREN WITH FAMILIAR HYPERcholesterolemia

P. Jelíňka, F. Stozicky, J. Raceč, O. Mayer Jr., L. Trefl, J. Filipovský. Charles University Hospital, Pilsen, Czech Republic

Background: Endothelial dysfunction (ED) as a sign of preclinical atherosclerosis should be detected early in children with familiar hypercholesterolemia (FH). Varying sensitivity of many biochemical and ultrasonographic markers makes diagnosis of ED difficult.

Aim of the study: To assess specific biochemical markers of ED and correlate them with flow mediated dilation (FMD) and deceleration index (DI) in children with FH.

Methods: FH group, n=32, age 14,7 (±2.9) years and group of healthy children, n =30, age 15.1 (±1.7) years were enrolled. The high selective CRP (hsCRP), oxidized LDL (oxLDL), malondialdehyde (MDA), asymmetric dimethylarginine (ADMA), FMD and DI were assessed.

Results: ADMA levels in the FH group was higher than in healthy controls — 0.94 umol/l (Z 0.18) versus 0.77umol/l (Z 0.14), p< 0.001. Levels of oxLDL were significantly higher in the FH group - 73,7 μmol/l (Z 24,9) versus 55,7 μmol/l (Z 30,5), p< 0.01. FMD and DI did not show significant differences between the FH and control groups. No correlations between ADMA, oxLDL, hsCRP and ultrasonographic markers were found.

Conclusion: ADMA and oxLDL appear to be more sensitive markers in detection of ED in children with FH than FMD and DI. The absence of correlation between biochemical and ultrasound markers could be explained by high biological variability of FMD and DI. The combination of ADMA, oxLDL and advanced imaging methods could improve the prediction of cardiovascular risk in children with FH.

☆ Supported by IGA, the Czech Ministry of Health (Nr. 8455-3).

P.037

PRESSURE WAVEFORM ESTIMATION IN THE COMMON CAROTID ARTERY — DIFFERENT METHODS IN COMPARISON

I. Zaccari 1, A.C. Rossi 2, E.M.H. Bosboom 3, P.J. Brands 2, 1Tor Vergata University, Rome, Italy, 2École Europe B.V., Maastricht, Netherlands, 3Department of Biomedical Engineering, University Hospital Maastricht, Maastricht, Netherlands

Non-invasive blood pressure waveform estimation in the common carotid artery (CCA) would yield an indirect estimation of its mechanical properties. Assuming both diastolic (Pd) and mean arterial pressure (MAP) to be constant over the arterial tree and considering arteries as rotationally symmetrical, CCA pressure waveform (PCCA(t)) can be estimated by rescaling the diameter waveform in the CCA (DCCA(t)) on the radial artery (RaA) blood pressure waveform (Pra(t)), using either a linear or an exponential estimation method.

11 normotensive volunteers were included. For each subject, 3 repeated measurements over three days with a weekly interval were performed in the RaA and the CCA simultaneously. Pmax(t) was measured using applanation tonometry, whereas DCCA(t) was measured with ultrasound.

Linear Estimation: DCCA(t) was linearly rescaled over Pmax(t) by equalizing diastolic and mean values of both waveforms: PCCA(t) = Pmax(t) * Pd/MAP. There was a good agreement between DCCA(t) and Pmax(t) with a mean difference of 0.9 ± 0.8 (95% confidence interval: 0.1-1.7).

Exponential Estimation: the ratio between systolic pressure values estimated by the two methods in the CCA is on average 2.6 ± 1.1 mmHg, approximately pressure-independent. The mean difference between the systolic pressure in the RaA and the CCA, using the exponential method, is 17.6 ± 6.3 mmHg. The difference between the radial MAP computed as integral mean and the one estimated with [1/3*Pd + 2/3*MAP] is -0.3 ± 1.4 mmHg.

Conclusion: Linear estimation can replace the exponential estimation, since both are pressure-independent and yield similar results. Estimation quality is not depending on the MAP value.

P.038

INTERRELATION BETWEEN DYNAMICS OF CHANGES ENDOThelial- DEPENDENT DILATATION AND LOCAL RIGIDITY OF THE BRACHIAL ARTERY IN PATIENTS WITH HYPERLIpidEMIA ON A BACKGROUND OF RECEPtION STATINS WITHIN 6 MONTHS

B.D. Koulev, N.V. Sankova, Nuraliev E. Yu, F.T. Ageev. Cardiology Research Center, Moscow, Russian Federation

Aim: To estimate and contrast the marks of a flow-mediated dilatation (FMD) and distensibility coefficient (DC) of the brachial artery in patients with primary hyperlipidemia on a background of statins within 6 months.

Materials and Methods: 25 patients, age 58 (31-64) years, with drug-controllable hypetensions and not received lipid-lowering therapies at least 4 weeks prior to the beginning of research. Patients accepted the statins (6 months) in dozes which were defined by titration before achievement of target levels of low density lipoprotein.

Results: FMD of the right brachial artery has been increased significantly after 3 and 6 months of therapy. DC and Blood pressure level changes were not significant within 6 months. Positive dynamics of FMD has been noted in 16 patients (64%), among them in 8 person (50%) negative dynamics DC is noted. The correlation analysis has revealed statistically significant negative interrelation between dynamics FMD and DC (r = -0.47; p = 0.043).

Conclusion: Improvement endothelial functions can be accompanied by increase local rigidity the main arteries of muscular type in the early period of therapy of statins in consequence of decrease basal tone and carry of loading on stiffness layers of an arterial wall, which demands the further researches.

P.039

THE NUMBER OF CD34+ CELLS IN PATIENTS WITH STABLE ANGIA PECTORIS: INFLUENCE OF ABNORMAL GLUCOSE METABOLISM AND CORONARY ANGIOPlASY


Background: Circulating progenitor cells (CPCs) play an important role in endothelial repair. We evaluated numbers of CD34+ cells in patients with