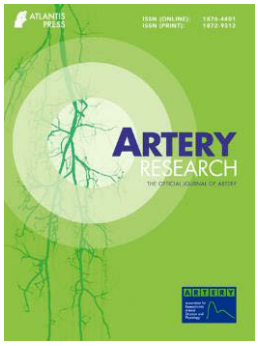

Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

P1.5: AGE-BASED COMPARISON OF THE ACUTE EFFECT OF MAXIMAL AEROBIC RUNNING EXERCISE ON ARTERIAL STIFFNESS IN CHILDREN AND ADULTS

X. Melo, B. Fernhall, D. Santos, R. Pinto, N. Pimenta, L. Sardinha, H. Santa-Clara

To cite this article: X. Melo, B. Fernhall, D. Santos, R. Pinto, N. Pimenta, L. Sardinha, H. Santa-Clara (2014) P1.5: AGE-BASED COMPARISON OF THE ACUTE EFFECT OF MAXIMAL AEROBIC RUNNING EXERCISE ON ARTERIAL STIFFNESS IN CHILDREN AND ADULTS, Artery Research 8:4, 130–130, DOI: https://doi.org/10.1016/j.artres.2014.09.086

To link to this article: https://doi.org/10.1016/j.artres.2014.09.086

Published online: 7 December 2019

femoral pulse wave velocity (PWV) and carotid intima- media thickness (IMT) evaluation. Dietary habits were evaluated through a special diet score (Med-Diet score, range 0-55), which assesses adherence to the Mediterranean dietary pattern. Higher values indicate greater adherence to this pattern.
Results: Based on the Med-Diet Score, three groups were formed (high $\geq$30, intermediate: 21-29 and low $\leq$ 20) with no significant differences in main risk factors between them. Patients with low score had significantly higher LVM, LVMI and E/E' compared to others. Regarding vascular parameters, aortic stiffness and IMT were inversely correlated to the Med-Diet score. Associations between cardiac and vascular parameters remained significant after adjustment for age and cardiovascular risk factors. **Conclusion:** Low adherence to the Mediterranean type of diet is significantly associated to impaired left ventricular and vascular structure and performance. Physicians should advise for healthier dietary habits and identify those who may need more intensive follow up.

P1.3
CAN ARTERIAL STIFFNESS AND AORTIC PULSE PRESSURE BE REDUCED BETTER IF ANTIHYPERTENSIVE TREATMENT IS PERFORMED ACCORDING TO LARAGH AND ALDERMAN IDEA?

T. Pizon [a], M. Rajzer [b], D. Czarnecka [b]
[a]*University Hospital, Cracow, Poland*
[b]*Jagiellonian University Medical College, Cracow, Poland*

The aim of the study was to check if plasma renin activity (PRA) is helpful for reduction of arterial stiffness. According to PRA value hypertensive patients should be divided into two subtypes low and high renin (PRA over/below 0.65ng/ml/h). According to Laragh and Alderman algorithm high renin "R" hypertension should be treated by RAA-system antagonists. Low renin "V" hypertension should be treated by diuretics or calcium channel blockers (anti-"V"drugs).
PRA was measured in 95 never treated patients, with HT stage 1 or 2. 59 patients were "high renin", 36- "low renin". Irrespectively of PRA patients were randomized to 6 months monotherapy with: quinapril,amlodipine,hydrochlorothiazide,losartan,bisoprolol. Finally four groups were compared for mentioned above subclinical organ damage: group1(high renin,anti-RAA drugs),group2(high renin,anti-V drugs),group3(low renin,anti-RAA drugs),-group4(low renin,anti-V drugs). Before and then after 1, 3 and 6 months of treatment pulse wave velocity (PWV) by using COMPLIOR, SPHYGMOCOR and ARTERIOGRAPH devices were performed. Moreover aortic pulse pressure (AoPP) was analysed from pulse wave in applanation tonometry by using SPHYGMOCOR device.
Results: At the baseline no differences between groups were observed in PWV. ANOVA for repeated measurements revealed for all groups significant decrease in PWV ($p=0.0007$). No differences appeared between groups 1-4 in mentioned above effect.
AoPP decresed significantly during observation period in all examined groups ($p=0.0003$), with no any between-groups difference.
Conclusions: Irrespectively of chosen drug and initial PRA value we observed similar effect for PWV and AoPP drops, therefore PRA value and chosen antihypertensive drug don't affect the magnitude of arterial stiffness and AoPP decrease.

P1.4
THE INFLUENCE OF REGULAR INTERVAL TRAINING ON BLOOD PRESSURE, ARTERIAL STIFFNESS AND ENDOTHELIAL FUNCTION AMONG HYPERTENSIVE SUBJECTS

T. Kameczura, M. Rajzer, D. Czarnecka
I Dept. of Cardiology and Interventional Electrophysiology with Hypertension, Kraków, Poland

Aim: The aim of the study was to evaluate the influence of 6 months regular IPT on blood pressure, carotid femoral pulse wave velocity (PWV), central aortic pulse pressure and selected indices of endothelial function among previously pharmacologically treated subjects with mild or moderate arterial hypertension.
Methods: Study group consisted of 60 hypertensive subjects (31 males, 29 females) (age 54,5 $\pm$ 8,8 years) previously treated for at least 3 years, with well controlled hypertension, i.e. below 140/90 mmHg, using combined hypertensive therapy. Treatment has not been changed during study period. Study group was randomly subdivided into 2 subgroups. In the first group (G1) IPT was applied for 6 months (40 professional IPT sessions performed two times per week, for 50-60 minutes each time) accordingly to specially developed program. In the second, control group (G2) there were no training sessions, only medical advice to maintain physical activity accordingly JNC hypertension guidelines. At the baseline visit and then after six months (final visit) in both groups office BP, PWV and central pulse blood pressure (PP) using SphygmoCor device, as well as plasma high selective C-reactive protein (hsCRP) and albuminuria in the daily collection (ALB) were obtained.
Conclusions: In relatively short time period regular IPT among treated hypertensive subjects decreased significantly not only blood pressure but also pulse wave velocity and central pulse pressure without changing selected endothelial function markers.

P1.5
AGE-BASED COMPARISON OF THE ACUTE EFFECT OF MAXIMAL AEROBIC RUNNING EXERCISE ON ARTERIAL STIFFNESS IN CHILDREN AND ADULTS

X. Melo [a], B. Fernhall [b], D. Santos [a], R. Pinto [a], N. Pimenta [a,c], L. Sardinha [a], H. Santa-Clara [a]
[a]*University of Lisbon, Lisbon, Portugal*
[b]*University of Illinois, Chicago, USA*
[c]*Sport Sciences School of Rio Maior - Polytechnic Institute of Santarem, Rio Maior, Portugal*

Purpose: Compare the effects of a bout of maximal aerobic running exercise(MARE) on local, central, peripheral and whole body arterial stiffness in children and adults.
Methods: Thirty-five children(girls:49%) aged 5($n=18$) and 9($n=17$) years-old and 45 adults(women:53%) aged 19($n=21$) and 30($n=24$) years-old performed a single bout of MARE on a treadmill. Local(LO) pulse wave velocity(PWV) was performed on the carotid artery with technology based on radio frequency signals. Central(carotid-femoral; CF), peripheral(carotid-radial; CR) and whole body(carotid-distal posterial-tibial; CD) PWV(m/s) were obtained using applanation tonometry before and 10min after MARE. Univariate analysis of variance were used to detect age-group differences between pre-post changes(%) with exercise($p<0.05$), adjusted for sex, mean brachial arterial pressure(bMAP) and %body fat by DXA.
Results: Children had lower baseline LO(5: 3.11; 9: 4.37), CF(5: 3.50; 9: 6.11), and CD(5: 4.88; 9: 7.11) PWV than adults. Children at the age of 9 had the highest changes in CF(27.17%) and CR(18.02%) PWV with exercise and changes were significantly different from those at the age of 30(CF: 3.91%; CR: -4.95%). PWV of 5 year-old children decreased after exercise in LO(-8.30%) and CD(-4.06%) and the changes were significantly different from those of 20 year-old subjects(LO: 13.56% and CD: -6.55%). Changes in LO, CF, and CD PWV with exercise were not significantly different between either adult's groups or children's groups.
Conclusions: Children had lower PWV than adults at rest. MARE elicited different site dependent arterial responses between children and adults that could not be explained by bMAP and sex.

P1.6
CAROTID-RADIAL PULSE TRANSIT TIME COMPARED TO THE PULSE ARRIVAL TIME TO THE CAPILLARY BED OF THE FINGER TIP DURING AND AFTER AEROBIC EXERCISE IN YOUNG HEALTHY SUBJECTS

N. Potocnik, H. Lenasi
University of Ljubljana, Ljubljana, Slovenia

Objectives: Measurement of the propagation times of cardiac-induced pulses along the arterial tree provides an important tool for studying arteries. The aim of our study was to measure the carotid-radial pulse transit time (c-rtT) in young healthy subjects before, during and 20 minutes after aerobic exercise and to compare it with the pulse arrival time to the capillary bed of the finger tip (PATc).
Methods: Following ethical approval eight men (20.8$\pm$0.4 years old) were recruited. We measured ECG, arterial blood pressure using Finapres Ohmeda, laser Doppler skin blood flow on the finger pulp and carotid or radial pulse with a tonometer (Millar SPT 30). After 5 minutes supine rest subjects mounted the cycloergometer and started a graded exercise until 85% of their maximal heart rate was reached. They recovered for 20 minutes. c-rtT and PATc were calculated.
Results: Our results revealed that c-rtT exhibited no statistically significant differences before and 20 minutes after exercise (111.3$\pm$4.1ms and 109.7$\pm$3.5ms), but was significantly decreased at highest workload (90.1$\pm$0,2ms). On the other hand PATc was increased 20 minutes after exercise compared to resting values (130.3$\pm$8.1ms and 120.7$\pm$5.5ms) and significantly decreased at highest workload (104.5$\pm$1.6ms). A linear correlation between c-rtT and corresponding RR interval duration during exercise was found ($p<0.001$) but no correlation between PATc and RR.