P4.49: RELATION BETWEEN ARTERIAL STIFFNESS AND COMPONENTS OF AMBULATORY BLOOD PRESSURE IN CHILDREN WITH HYPERTENSION AND CHRONIC KIDNEY DISEASE

L. Milne, L. Watt, P. Chowienczyk, M. Sinha


To link to this article: https://doi.org/10.1016/j.artres.2012.09.196

Published online: 21 December 2019
For this study 109 male and 117 female, lifelong non-smoking, normotensive subjects (40 ± 11 years, BMI 25.6 ± 3.9 kg/m²) were recruited from general population. Subjects with abnormal glycemic responses after an oral glucose tolerance test (OGTT) were excluded. High resolution B-mode ultrasound images (HD7XE, Philips, U.K.) of the common carotid artery were used to measure carotid intima-media thickness (CIMT) and calculate carotid compliance/distensibility. Central aortic blood pressure and pulse wave velocity (PWV) were measured using applanation tonometry (Sphygmocor & Vicorder, Skidmore Medical, U.K.). Early/late mitral valve filling velocity (MV E/A) was used to assess cardiac diastolic function (Vivid 7 Dimension, GE, USA). Mean fasting and plasma glucose and post-OGTT glucose were 5.02 ± 0.46 mmol/L⁻¹ and 4.96 ± 1.09 mmol/L⁻¹. Mean CIMT, carotid compliance & distensibility, PWV and MV E/A were 0.52 ± 0.07 mm, 15.86 ± 13.15 m², kPa·10⁻² & 49.09 ± 34.95 kPa·10⁻², 7.03 ± 1.23 ms⁻¹ and 43.46 ± 18.65 respectively.

Spearman’s analysis revealed significant correlations between fasting blood glucose and carotid compliance & distensibility (p=0.0225, p<0.0238; 0.2615, p<0.0007), MV E/A ratio (-0.3722 p=0.0001) and PWV (0.1666, p<0.0127). No significant correlation with CIMT was observed (0.0614, p>0.4983).

These results indicate that the vascular disease continuum exists in association with metabolic derangement even in the “normal” ranges.

P4.47
THE ROLE OF PHYSICAL TRAINING ON ARTERIAL AND ARTERIOLAR AGING
Z. Melik, K. Cankar, M. Strucil
University of Ljubljana, Medical Faculty, Institute of Physiology, Zaloska 4; 1000 Ljubljana, Ljubljana, Slovenia

Introduction: Aging affects macro and microvessels. The aim of present work was to determine if regular physical training could diminish age related changes in cardiovascular system and vascular reactivity.

Methods: Heart rate (HR), systolic (SBP) and diastolic blood pressure (DBP), stroke volume (SV), cardiac output (CO), total peripheral resistance (TPR) and laser-Doppler flux (LDF) were monitored at rest and during cooling of one hand for six minutes at 15°C. We examined four groups of subjects: young healthy trained (YT, 22.8 ± 4.0 years) (N=11), young sedentary (YS, 23.3 ± 0.3 years) (N=11), elderly healthy trained (ET, 50.6 ± 1.0 years) (N=12) and elderly sedentary subjects (ES, 74.7 ± 0.9 years) (N=11).

Results: There were statistically significant differences in HR, DBP, SV, CO and TPR among groups at rest. However, resting LDF did not vary among groups. During cooling there was significantly smaller LDF decrease in the group of ES (70.38 ± 6.0 % of precouling value) when compared to the YS (41.23 ± 7.6 %) (Dunnnett’s test, p<0.01). In contrast, there was no significant difference in LDF response to cold in YT (49.60 ± 9.3 %) and ET (53.65 ± 8.2 %).

Conclusions: Physical training partially prevents changes in cardiovascular function and microvascular reactivity in the elderly subjects. HR and SBP did not rise with ages as did DBP and TPR. Training prevented falling in SV but not in CO. HR was significantly lower in ET than YT. Training successfully prevented decrease in cutaneous microvascular response to cold in the elderly.

P4.48
SUPERIOR PERIPHERAL AND CENTRAL BLOOD PRESSURE (BP) CONTROL AFTER SWITCHING HYPERTENSIVE TYPE 2 DIABETIC PATIENTS WITH UNCONTROLLED HYPERTENSION UNDER RAMIPRIL/HCT TO PERINDOPRIL/INDAPAMIDE
T. Mengden 1, W. Sehnert 2
1Kerckhoff Clinic, Bad Nauheim, Germany
2Clinical Research Institute, Dortmund, Germany

The aim of the present study was to compare the change from baseline BP (office, 24-h ABPM, central BP) in uncontrolled, hypertensive type 2 Dm patients under ramipril/HCT after switching therapy to a dose-equivalent fixed combination of perindopril/indapamide Investigator initiated, non-randomized, one arm study. Typ 2 Dm, males and females >18, with previously uncontrolled hypertension as defined by a sitting office BP ≥130/80 mmHg (office BP). Triplicate office BP was measured with a validated, fully automatic, oscillometric upper arm device (ESH guidelines; Microlife watch BP office). 24-h-ABPM (Central and peripheral BP) was measured with a validated device at baseline and after 8 weeks therapy (Mobilograph, IEM, Germany) Central BP in the clinic was measured at baseline and after 4 and 8 weeks therapy according to the recommendations of the ESH working group on Large Arteries (Sphygmocor, Atcor).

Results: Up to now 18 patients with a mean age of 61+10 years and a BMI von 30+6 were included. Mean daily dosage of Ramipril/HCT was 5.3±2.2 mg, the respective dosage after changing to Perindopril/Indamid was 5.9±1.49 mg.

Switching hypertensive Typ 2 diabetic patients with uncontrolled hypertension under Ramipril/HCT to Perindopril/Indapamide resulted mainly in superior systolic blood pressure control. This effect was persistent for central BP as well as for 24-h-ABPM.