P.090: BASELINE PULSE WAVE VELOCITY IS AN INDEPENDENT PREDICTOR OF THE BLOOD PRESSURE REDUCTION AND EFFECTIVE BLOOD PRESSURE CONTROL: THE REASON STUDY

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consisted of 19 healthy volunteers (16 women and 3 men) matched in age (the age of 21—62 years) and body mass index (BMI). Assessment of endothelial function was performed in the brachial artery using high-resolution vascular ultrasonography by standard method for the assessment of endothelium-dependent vasodilatation (EDV) Also level of von Willebrand factor (VWF) has been studied. Studies were performed before and after treatment of β-blockers during 3 weeks. After the first examination, patients were randomised in to 2 groups. 1st group was treated by nebivolol (2,5 mg/day), 2nd group was treated by metoprolol (25 mg/day). Before treatment level of VWF has been increase (97,7 ± 8,7%) in comparison with control group (46,8 ± 7,3%, p<0,01) and EDV has been decreased at 50% of patients. After treatment FW has not varied in group 1 (98,6 ± 6,9%) compared in control, but has increased in group 2 (119,8 ± 8,8%). EDV was normalized at 60% of patients in group 1, but has not varied in group 2. These results demonstrated, first, that the endothelial dysfunction developed at ST, in the second, that these changes can be removed by therapy of nebivolol.

P.089
INFLUENCE OF A SUBCLINICAL THYROTOXICOSIS ON HEART IN VARIOUS AGE-GRADES

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Subclinical thyrotoxicosis (ST) characterized by low serum TSH and normal FT_4 and FT_3 concentrations. ST may cause changes of geometry of heart and developments of diastolic dysfunction. Influence of ST on this evolutions depending on age of patients, duration of ST, effect of TSH level is not clear. In present research the effects of ST on changes of EchoCG at a different age were studied. The present study includes 102 normotensive patients with ST without any CVD (the age of 20-60 years, 10 men and 92 women) The patients were examined echocardiography by standard method.The patients were distributed on 3 age-grades: 1st group (gr1) (n=22) — 20-35 years; 2-nd group (gr2) (n=32) - 35-45 years and 3-rd group (gr3) (n=48) - 45-60 years. The parameters EchoCG were normal in patients of gr1 and gr2: relative wall thickness (RWT) (0,34 ± 0,009 and 0,35 ± 0,01 cm), left atrial diameter (LAD) (3,8 ± 0,09 and 3,8 ± 0,07 cm), isovolumic relaxation time (IVRT) (93,8 ± 1,93 and 92,7 ± 3,1 msec) left ventricular mass index (LVMI) (83,6 ± 3,24 and 90,5 ± 5,1 g/m^2). However, the mean RWT (0,41 ± 0,01 cm, p<0,05), LAD(4,1 ± 0,18 cm, p<0,05), IVRT(100,6 ± 4,1 msec, p<0,05) and LVMI (103,2 ± 7,3 g/m^2 p<0,05) in patients gr3 was higher than that in gr1 and gr2. The frequency of left ventricular hypertrophy (LVH) was in gr1 — 10%, in gr2 — 8,3%, in gr3 — 36,4%, left atrial enlargement (LAE) was in gr1 - 25%, in gr2 — 20,8%, in gr3 — 35,5%, diastolic dysfunction (DD) was in gr1 - 30%, in gr2 — 31,8%, in gr3 — 47,4%, increase pulmonal pressure >30 (IPP) was in gr1 — 19%, in gr2 - 59%, in gr3 - 19%. The level T3, T4 was highly positive correlated with LAD(r=0,32, p<0,05) and pLA (r=0,55, p<0,01) and level TSH was highly negative correlated with pLA(r=-0,31, p<0,05). The LVMI and IVRT were positive correlated both with age (r=0,49, p<0,01 and r=0,34, p<0,05) and level T3(r=0,32, p<0,05 and r=0,25, p<0,1). Specific attributes of influence of ST on a heart were appearanced of IPP, LAE and DD, which were meet at any age with high often. The LVH was less characterised at ST and frequency of its development at young age is similar as in a comparable population on age. Frequency of LVH was significantly higher in patients >45 years old.

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Background-Aim: The degree of blood pressure reduction remains the corner stone of a successful treatment in hypertension. Various parameters have been evaluated in order to predict the response to drug treatment, but no single marker has been found to predict the response to blood treatment. Arterial stiffening is a dominant trait of aging and is further accelerated by numerous cardiovascular risk factors which have been evaluated as predictors of the response to antihypertensive drug treatment. We sought to investigate whether baseline arterial stiffness is a predictor of the response to drug treatment.

Methods: 375 subjects were investigate in an intention to treat prospective study and were randomly allocated to receive atenolol 50 mg or perindopril 4 mg/indapamide 2.5 mg, for 12 months. Carotid-femoral pulse wave velocity (PWV) and classical cardiovascular risk factors were assessed at baseline.
Results: PWV was a predictor of systolic and diastolic blood pressure change after 12 months, independently from age, gender, medication, cardiovascular risk factors and baseline blood pressure. Similarly, PWV was also an independent predictor of the presence of effective blood pressure control after 12 months of treatment. Finally, those subjects within the highest tertile of baseline PWV, demonstrated the lowest blood pressure reduction after 12 months, even after adjustment for age, gender, medication and baseline blood pressure.
Conclusion: Increased large artery stiffness is associated and predicts reduced response to antihypertensive drugs; future investigations are needed to show whether it could be a useful tool in clinical use.

P.091
A PATIENT SPECIFIC WAVE PROPAGATION MODEL OF THE UPPER LIMB

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In this study, a patient specific lumped parameter model is used to investigate pressure wave propagation phenomena and estimate mechanical properties of large arteries of the upper limb.

A set of local ultrasound measurements was obtained from a group of 7 healthy volunteers to provide vessel wall distension (WD) and blood velocity at several positions. Blood volume flow (BVF) is estimated from the centerline velocity using the Womersley profile method. The lumped parameters R, L, C along the arm are computed with a linear interpolation method from local blood pressure (BP) and WD. Thus, an entire arterial tree model, from the arm pit to the wrist, modeling the brachial, radial and ulnar arteries, is built. Time average BVF and BP values are used to determine the end impedance of the extremities. The BVF at the more proximal site is used as input for the simulations.

Simulated BVF and BP curves are compared with the in-vivo results. A reverse method adapts the model parameters resulting in values reflecting physiological results.

The results show that the shape of the simulated BVF along the arm is comparable with the in-vivo estimations. However, large differences are observed between simulated BP and in-vivo assessed WD curves. We hypothesize that those differences are due to the non-linear and visco-elastic properties of the arterial wall. Therefore, a continuous wave propagation model which takes those properties into account should be implemented. The experimental simulations provide and suggest improved physiological modeling of the pressure/flow relationships.

P.092
EXERCISE IS A PROTECTIVE FACTOR AGAINST ARTERIAL STIFFNESS RESULTS FROM THE MONICA/KORA AUGSBURG STUDY

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Background: Evolving evidence suggests that exercise could attenuate or even revert the continuous increase of arterial stiffness mediated by aging or risk factors like high blood pressure. We aimed to study whether exercise has protective effects on arterial stiffness.
Methods: Subjects (n=882, aged 35 to 84 years), who originated from a gender and age stratified random sample of German residents of the Augsburg area, were examined by standardized applanation tonometry. We defined two groups of individuals, one who practiced sports at least 1 hour per week (exercise group; n = 468) and one who practiced no sports or did at an irregular way (sedentary group; n = 414). We evaluated cross sectionally the adjusted mean values of the augmentation index at heart rate of 75 (AI), the subendocardial viability index (SVI) and the aorta pulse pressure (APP) using linear regression models adjusting for age, sex, fat-free mass, body fat and systolic and diastolic blood pressure.
Results: Individuals who practiced sports, as compared to sedentary individuals, showed smaller augmentation index at heart rate of 75 (AI, 21.7