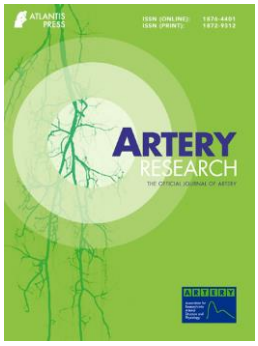

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P5.18: CENTRAL HEMODYNAMIC' S ARE ASSOCIATED WITH DIABETIC COMPLICATIONS IN TYPE 1 DIABETES

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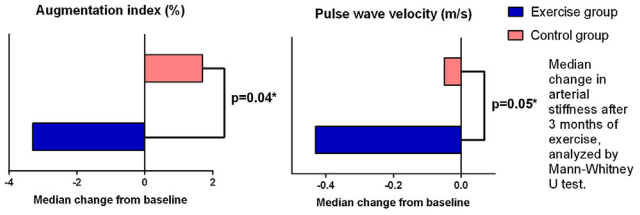
wave velocity (PWV) were assessed at baseline and after intervention. Statistical analyses (SPSS 20) were performed using Mann-Whitney U test to compare median change (from baseline to 3 months) of the parameters between EG and CG. Analyses were performed pr protocol.
Results: 28 AS patients were recruited, 24 patients fulfilled the study, 10 in the EG and 14 in the CG. There were some differences in demographics (EG vs. CG): age, years [median (min-max)] 43 (30-67) vs. 50 (26-68), male gender: 20% vs. 71%. After the study period, arterial stiffness was reduced in the EG compared CG, both significant for AIx (%) median (min-max) -3.3 (-24.5-2.5) vs. 1.7 (-13.5-10.3), p=0.04 and for PWV (m/s) median (min-max) -0.4 (-1.9-0.1) vs. -0.1 (-1.5-0.1), p=0.05 (figure).
Conclusion: Intervention with high intensity aerobic exercise in AS patients reduced arterial stiffness after 3 months compared to controls.

Figure



P5.15
SEX DIFFERENCES IN CENTRAL ARTERIAL STIFFNESS AND PRESSURES BEFORE AND FOLLOWING MAXIMAL EXERCISE

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Objective: There are sex differences in resting central pulse wave velocity (cPWV) but it is unclear if there are sex differences in the response to exercise. We evaluated potential sex differences of two measures of arterial stiffness and central pressures before and following maximal exercise.
Methods: We compared aortic and carotid systolic blood pressure (SBP), carotid β-stiffness and cPWV at rest, 15 minutes and 30 minutes following peak aerobic exercise in 73 participants (age=24 yrs; male n=34, female n=39).
Results: Women had lower aortic SBP, carotid SBP and CPWV, but similar carotid β-stiffness as men. Aortic SBP did not change, but carotid SBP and carotid β-stiffness increased 15 min post exercise ($p<0.05$) and returned to baseline at 30 min post exercise in both men and women. cPWV was unchanged with exercise in women, but decreased 30 min post exercise in men ($p<0.05$). These sex differences were unchanged when the data were corrected for differences in resting BP.
Conclusions: Resting cPWV and the cPWV response to exercise differ between men and women, without any sex differences in carotid stiffness. This suggests that sex may affect arterial stiffness differently in different arterial segments. Furthermore, the central BP response to exercise differs between the aorta and carotid arteries, in both men and women, suggesting the BP response to exercise is dependent on the arterial segment where it is measured.

P5.16 Withdrawn by author

P5.17
NOCTURNAL CHANGES OF AUGMENTATION INDEX MAY BE RELATED TO DIPPING STATUS

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Aim: Important prognostic significance of day-night brachial blood pressure (BP) decline for cardiovascular morbidity and mortality has been established. It is little known about diurnal variations of arterial stiffness parameters — augmentation index (AI@75) and aortic pulse wave velocity (PWV) as the non-invasive techniques for their 24-h ABPM has been just recently developed and validated. The aim of the study was to evaluate diurnal variations of AI and PWV in hypertensive subjects.
Methods: ABPM was done in untreated hypertensive subjects using BPLab VASOTENS ("OOO Petr Telegin", Nizhniy Novgorod, Russia) brachial oscillometric device which allows to derive aortic AI and PWV. Analysis included the successful ABPM results of 87 (47 male, age 61 years) subjects. Diurnal BP pattern was evaluated by diurnal index of systolic BP=(daytime SBP-nighttime SBP)/day-time SBP. Subjects were classified to dippers, non-dippers, night-peakers and over- dippers using usual cut-offs for brachial systolic BP.
Results: In dippers (n=29) nocturnal decline was 12,8±2,5% for brachial and 16,3±3,6% for aortic SBP, night- and day-time values of PWV and AI@75 were similar: 10,8±1,1 and 10,2±1,3 m/s, and 25,9±15,0 and 27,3±14,5%, respectively. In non-dippers nocturnal decline was 5,9±2,6% for brachial and 4,3±2,9 for aortic SBP, day- and night-time PWV values were similar (10,8±0,9 and 10,3±0,9 m/s), AI@75 tended to be higher during night then daytime (32,7±16,8 vs 27,9±14,6%). In night-peakers (n=13) night-time nocturnal decline was -3,9+3,75% for brachial and -4,8±3,9% for aortic SBP, day- and night-time PWV values were similar (10,6±1,0 and 10,5±1,3 m/s) and AI@75 tended to be higher during night then daytime (27,6±16,0 vs 36,8±32,6%). In over-dippers (n=4) night-time nocturnal decline was 20,7±0,9 for brachial and 20,2±1,0 for aortic SBP, day- and night-time PWV values were similar (10,3±0,9 and 9,5±0,8 m/s) and AI@75 tended to be higher during day then night-time (20,2±13,1 vs 14,2±18,7%).
Conclusion: The results suggest that PWV is relatively constant during 24-h, but nocturnal changes of AI@75 may vary across different SBP diurnal patterns

P5.18
CENTRAL HEMODYNAMIC' S ARE ASSOCIATED WITH DIABETIC COMPLICATIONS IN TYPE 1 DIABETES

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Objectives: We investigate associations between central hemodynamics and complications in type 1 diabetes.
Methods: Cross-sectional study, 676 type 1 diabetes patients, mean±SD age 55±13, 375(56%) male. Central hemodynamics measured by pulse wave analyses (PWA) (SphygmoCor (Atcor Medical, Australia) as central aortic systolic pressure (CASP), central pulse pressure (CPP), central diastolic pressure (CADP) and subendocardial viability ratio (SEVR) (index of myocardial oxygen supply and demand). Standardized values of hemodynamic measures were used in adjusted analyses. Complications were presence of albuminuria (≥30mg/24-hour), cardiovascular disease (CVD), retinopathy or autonomic dysfunction (heart rate variability <11 beats/minute).
Results: PWAs were available in 636 patients. Mean±SD CASP: 118±17 mmHg, CADP: 75±10 mmHg, CPP: 43±14 mmHg and SEVR: 150±32.
CVD (n=120) and autonomic dysfunction (n=349) was associated with: CASP (per +1 standard deviation (SD)): odds ratios (OR)=3.6(2.0-6.5) and 4.8(2.6-8.8); CPP (per +1SD): OR=2.0(1.5-2.7) and 2.2(1.6-3.1); CADP (per -1SD): OR=2.9(1.7-5.0) and 2.9(1.7-5.1); and SEVR (per -1SD): OR=1.7(1.1-2.6) and 2.4(1.6-3.5) (adjusted for gender, diabetes duration, mean arterial pressure, heart rate, height, urinary albumin excretion rate (UAER), eGFR, HbA_{1c}, cholesterol, antihypertensive medication and smoking). None of the hemodynamic variables were associated with albuminuria (n=335) or retinopathy (n=469) ($p\geq0.14$). However, if analysing UAER as a continuous variable, all hemodynamic variables were independently associated with level of UAER ($p\leq0.001$).
Conclusions: In patients with type 1 diabetes, central hemodynamics are independently associated with CVD, autonomic dysfunction and level of UAER, but not with albuminuria grade or retinopathy. Future studies are needed to determine if targeting central hemodynamics improve outcome.

P5.19
STIFF ARTERIES, STIFF HEARTS?

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Objectives: To examine the relationship between arterial stiffness and diastolic function in healthy normotensive subjects.
Methods: For this study, 43 male (40±10 years) and 64 female (40±9 years) subjects were recruited. All were lifelong non-smokers, normolipidaemic, normoglycaemic and had normal 24-hour blood pressure responses (SBP\DBP <140\90). For each subject, metabolic profile and anthropometric measurements were recorded. Carotid-femoral pulse wave velocity (PWV) was measured to assess arterial stiffness. Early/late mitral valve filling velocity (MV E/A) and isovolumetric relaxation time (IVRT) was used to assess diastolic function.