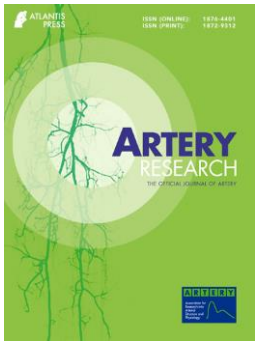

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# P3.3: THE CKD273 URINARY PROTEOMIC BIOMARKER FOR EARLY DIAGNOSIS OF DIABETIC NEPHROPATHY DOES NOT INDICATE GENERALISED SUBCLINICAL VASCULAR DISEASE IN NORMOALBUMINURIC TYPE 2 DIABETIC PATIENTS

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relative work (low-fitness) (154±22 vs. 133±15 mmHg, p<0.001). The high-fitness group had greater stroke volume, lower heart rate and LV longitudinal strain compared to the low-fitness group (72±18 vs. 59±15 ml, 61±9 vs. 68±9 bpm, -18±4 vs. -20±3%, p<0.05 for all). Exercise systolic BP was associated with LV mass index independent of resting BP, age and sex in the low-fitness group during stage one of the PWC170 (β=0.13, 95% CI=0.01-0.3) but not in the high-fitness group at any stage.
**Conclusions**: Sub-maximal exercise systolic BP independently relates to LV mass index in those with low, early stage-relative aerobic capacity. BP measured during submaximal exercise testing (light-intensity) may reveal early changes in hypertension-related organ damage that are more evident in people with low-fitness.

### P3.2
### ROGOZA INDEX IN HEALHY VOLUNTEERS AS A FUNCTION OF AGE

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**Background**: Recently, prof Anatoly N Rogoza proposed a new vascular index calculated from one-channel volume sphygmography of brachial artery, Rogoza's Index or Rogoza Index. It may be useful as a new indicator of asymptomatic vascular damage associated with cardiovascular risk in patients with hypertension.
**Objective**: This study provides just an idea about the Rogoza Index in healthy volunteers as a function of age and sex.
**Methods**: The object of the study was the set of 120 bpw-files (BPLab format) with oscillometric ambulatory (24-h) blood pressure readings in age-matched group of 60 male and 60 female healthy volunteers. Rogoza Index (ms/cm) was calculated as RWTT/L where RWTT is reflected wave transit time (ms) and L is height (cm).
**Results**: Averaged 24-h Rogoza Index was 1.1885—0.0063·Age (r=-0.30) for men and 0.93276—0.0025·Age (r=-0.27) for women; averaged daytime Rogoza Index was 1.2054—0.0067·Age (r=-0.32) and 0.90598—0.0022·Age (r=-0.22) and nightime 1.1412—0.0049·Age (r=-0.24) and 1.0076—0.0033·Age (r=-0.31) accordingly. All correlations are significant, p<0.05.
There was also a significant difference between Rogoza Indices in male and female subgroups: for 24-h period Rogoza Index was of 0.88 vs 0.80 ms/cm (mean, p=0.002); for daytime of 0.79 vs 0.87 ms/cm (p=0.001); and for nighttime of 0.84 vs 0.90 ms/cm (p=0.002).
**Conclusions**: Rogoza Index is sex- and age- dependent like other surrogate indices of arterial stiffness.

### P3.3
### THE CKD273 URINARY PROTEOMIC BIOMARKER FOR EARLY DIAGNOSIS OF DIABETIC NEPHROPATHY DOES NOT INDICATE GENERALISED SUBCLINICAL VASCULAR DISEASE IN NORMOALBUMINURIC TYPE 2 DIABETIC PATIENTS

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**Background**: Diabetic nephropathy (DN) is associated with cardiovascular disease. Microalbuminuria (MA), its traditional hallmark, reflects both renal and generalised vascular damage. We previously established a urinary proteomic classifier (CKD273) for early DN prediction that correlates with other biomarkers of renal function. Whether CKD273 only indicates renal damage or also generalised vascular disease remains unclear.
**Methods**: We recruited 80 patients with type 2 diabetes (age, 62±7 years; blood pressure 138±11/79±8mmHg) free from cardiovascular complications with normal renal function (eGFR (88±15 ml/min/1.73m$^2$) and normoalbuminuria (albumin: creatinine ratio (UACR), 5 (2-16) mg/g). Participants underwent measurement of carotid-femoral pulse wave velocity (PWV; SphygmoCor) and carotid intima media thickness (cIMT; ultrasound). Urinary proteomic analysis was performed by capillary electrophoresis coupled to mass spectrometry.
**Results**: Mean CKD273 score (-0.234±0.376) was well below the pre-established cut-off (0.343) for diagnosis of DN. There was a trend towards higher CKD273 score in patients with UACR above the median (-0.160±0.372 *vs* -0.318±0.368; *P*=0.061). Median time from diabetes diagnosis was 11 (1-30) years; diabetes control was suboptimal (HbA1c, 62 (45-102) mmol/mol); and participants had subclinical vascular damage (PWV, 9.2 (6.4-12.5) m/s; cIMT, 0.850 (0.543-1.292) mm). As expected we saw a significant correlation between PWV and systolic blood pressure (*r*=0.259; *P*=0.024). The CKD273 classifier did not correlate with PWV (*r*=0.174; *P*=0.132) or cIMT (*r*=-0.096; *P*=0.415).
**Conclusion**: CKD273 is not a marker of subclinical macrovascular disease in normoalbuminuric type 2 diabetic patients without overt cardiovascular complications. Our data provide further evidence that CKD273 is a specific marker of renal damage.

### P3.4
### PULSE WAVE REFLECTIONS AND THEIR DIURNAL CHANGES IN PATIENTS WITH MARFAN SYNDROME COMPARED TO HEALTHY CONTROLS

Bernhard Hametner [1,*], Matthias Hillebrand [2], Ghazaleh Nouri [2], Stephanie Parragh [1,5], Jelena Köster [3], Kai Mortensen [3], Achim Schwarz [4], Yskert von Kodolitsch [2], Siegfried Wassertheurer [1]
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**Introduction**: Patients with Marfan syndrome may suffer from a variety of symptoms, including changes of the cardiovascular system. The aim of this study was to perform ambulatory 24 hour blood pressure and pulse wave measurements in a group of Marfan patients and a group of healthy controls and to analyse wave reflections.
**Methods**: All measurements were obtained with the Mobil-O-Graph device. Reflection magnitude (RM) was calculated with the inbuilt ARCSolver algorithms and averaged during daytime and nighttime. The study included 27 patients with Marfan syndrome and 27 healthy controls. Matching criteria were age (39 years mean in both groups), sex (14 female) and daytime brachial systolic blood pressure (119 mmHg mean in both groups). Patients with Marfan syndrome were significantly taller than controls (190 cm vs. 174 cm).
**Results**: Reflection magnitude increased significantly during night in both groups (Marfan: 57.8 day, 66.6 night; controls: 58.6 day, 68.7 night). Differences between groups were not significant both day and night. Correlations between RM and body height were positive in Marfan patients (R=0.36 day, R=0.33 night) but negative in controls (R=-0.47 day, R=-0.66 night), showing a significantly different trend (p<0.01).
**Conclusions**: There are similar levels and diurnal changes of reflection magnitude in patients with Marfan syndrome and healthy controls, but correlations of RM to body height are significantly different in Marfans and controls. This finding may relate to structural changes of the cardiovascular system associated with Marfan syndrome.

### P3.5
### TYPE 2 DIABETES EXACERBATES CAROTID ARTERY ECHOGENICITY AND CENTRAL ARTERY STIFFNESS IN MIDDLE-AGED AND OLDER INDIVIDUALS

Kunihiko Aizawa [1,2,*], Francesco Casanova [1,2], Dave Mawson [1,2], Salim Elyas [1,2], Damilola Adingupu [1,2], Kim Gooding [1,2], David Strain [1,2], Angela Shore [1,2], Phillip Gates [1,2]
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Grey scale median of the common carotid artery intima-media complex (IM-GSM) characterizes the composition of the arterial wall and low IM-GSM reflects more generalized atherosclerotic vulnerability. However, it is unclear whether the presence of DM itself affects IM-GSM, similar to that observed with aortic stiffness. We measured IM-GSM and aortic stiffness in middle-aged and older individuals with and without DM. We included 264 individuals with DM (DM+; 67.0±8.9yrs, 83F) and 226 individuals without DM (DM-; 66.3±9.3yrs, 81F). Ultrasound images of the common carotid artery intima-media thickness (IMT) were obtained and IM-GSM was analysed using semi-automated edge-detection software. Aortic stiffness was assessed by carotid-femoral pulse wave velocity (cfPWV) using a SphygmoCor® device. IM-GSM was significantly lower in DM+ than DM- (103.6±1.5au vs 113.4±1.6au, *p*<0.05) after adjustment for age and sex. Adjustments for cardiovascular disease (CVD), hypertension (HT), statin treatment and IMT did not change the finding. cfPWV was significantly higher in DM+ than DM- (10.2±1.0m/s vs 9.1±1.0m/s, *p*<0.05) after adjustment for age, sex and mean arterial pressure. Adjustments for CVD, HT, statin treatment and heart rate did not change the finding. With further adjustment for HbA1c, cfPWV became similar between the groups, but IM-GSM remained lower in DM+ than DM- (*p*<0.05). These results demonstrate that the presence of DM