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-fit- 
ness 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, −20±3% vs. −26±4% for all). Exercise systolic BP was asso-
associated with LV mass index independent of resting BP, age and sex in the low-
fitness group during stage one of the PWCT10 (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 HEALTHY 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 pa-
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-flies (BPLab format) 
with oscillometric ambulatory (24-h) blood pressure readings in age-
matched group of 60 male and 60 female healthy volunteers. Rogoza In-
dex (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 1.1855–0.0063 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 0.90989–0.0022 Age 
(r = −0.22) and nighttime 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 NORMALOBLUMINURIC 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 prote-
omic classifier (CKD273) for early DN prediction that correlates with other 
biomarkers of renal function. Whether CKD273 only indicates renal damage 
or also generalised vascular damage remains unclear.

Methods: We recruited 80 patients with type 2 diabetes (age, 62±7 years; 
blood pressure 138±11/79±8 mmHg) free from cardiovascular complications 
with normal renal function (eGFR 88±15 ml/min/1.73m²) and normalalbumi-
uria (albumin: creatinine ratio (UACR), 5 (2-16) mg/g). Participants under-
went 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 (-0.23±0.376) was well below the pre-estab-
lished 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/
ml); 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 
normalalbuminuric 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 
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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 Mobi-10 Graph device.

Reflection magnitude (RM) was calculated with the inbuilt ARCSolver algo-
rithms 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: 56.8 day, 68.7 night). Diff-
ferences 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 cor-
relations of RM to body height are significantly different in Marfans and con-
trols. 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 
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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, 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±8.9 yrs, 83F) and 226 individuals without DM 
(DM−; 63.3±9.3yrs, 81F). Ultrasound images of the common carotid artery 
intima-media thickness (IMT) were obtained and IM-GSM was assessed 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− (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 ±1.0 ms/s vs 9.1±1.0ms/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