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

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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.
68.7 ± 4.5 ml; p < 0.03 vs. p < 0.05 for all). Exercise systolic BP was asso-
ciated 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.

P3.4
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 Mobil-O-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). Differ-
ences 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
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 ± 22.6 vs
113.4 ± 21.8, 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

Abstracts