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PO-25: HIGHER CENTRAL AND BRACHIAL SYSTOLIC BLOOD PRESSURE IS SELECTIVELY ASSOCIATED WITH WEAKER COGNITIVE PERFORMANCE IN POSTMENOPAUSAL WOMEN BUT NOT OLDER MEN

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risk factors. To address this gap, we aimed to assess the relationship between pedometer-derived step counts and carotid-femoral pulse wave velocity (cfPWV), a summative measure of arterial health.

Methods: 369 adults (46% men, 60% White, mean age 59.6±11.2 years, BMI 31.3±4.5 kg/m²) with hypertension and/or type 2 diabetes were recruited in Montreal, Canada (2011-2015). Step counts (Yamax SW-701 pedometer), moderate-to-vigorous physical activity (MVPA) (ActiGraph GT3x+), arterial stiffness (applanation tonometry; SphygmoCor), and cardiometabolic risk factors including blood pressure, haemoglobin A1c, and lipids were assessed.

Results: Blood pressure was well-controlled (mean 125/77±15/9 mmHg), low-density lipoprotein cholesterol (LDL-C) was close to target (mean 2.5±1.0 mmol/L), and A1c in diabetes was acceptable (mean 7.7±1.3%). Participants averaged 5,125±2,722 steps/day (low active) and mean cfPWV was 9.8±2.2 m/s. Step counts correlated with cfPWV, but not with any other cardiometabolic risk factors. A 1,000 step/day increment was associated with a 0.1m/s (95% CI -0.19, -0.02) decrement in cfPWV in a model adjusted for age, sex, BMI, ethnicity, immigration status, employment, education, diabetes, hypertension, medication classes, and MVPA.

Conclusion: In patients with hypertension and/or diabetes who were well-controlled on cardioprotective medications, cfPWV is responsive to step counts and may emerge as a useful health indicator to track the arterial health impact of physical activity strategies in clinical practice.

PO-25

HIGHER CENTRAL AND BRACHIAL SYSTOLIC BLOOD PRESSURE IS SELECTIVELY ASSOCIATED WITH WEAKER COGNITIVE PERFORMANCE IN POSTMENOPAUSAL WOMEN BUT NOT OLDER MEN

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Introduction: Higher aortic stiffness and central blood pressure (BP) are associated with reduced cognitive performance in older adults. Cognitive performance tends to be higher in older women compared with older men, unexplained by differences in years of formal education and/or presence of atherosclerotic vascular disease (AVD). However, whether gender-related differences in cognitive function are explained by alterations in aortic stiffness or central blood pressure (BP) is unclear. We hypothesized that higher aortic stiffness and central systolic BP would be associated with weaker cognitive performance in middle-aged/older (MA/O) men but not postmenopausal women.

Methods/Results: A total of 135 MA/O men and postmenopausal women (age 55-85 yrs) were recruited. Brachial systolic BP was higher in men, however, there were no differences in aortic stiffness (carotid-femoral pulse wave velocity, cfPWV), central systolic BP or pulse pressure (PP) (Table 1). Women scored higher than men on the RBANS Total Scale Score and Delayed Memory Index (both P<0.05) (Table 1). In the entire cohort, higher central and brachial systolic BP were associated with weaker Stroop Color Naming (r=-0.24, P<0.05, r=-0.25, P<0.05) and Stroop Interference (r=-0.30, P<0.01, r=-0.32, P<0.01) performance. Interestingly, years of education was associated with RBANS Total Scale Score (r=0.64, P<0.001) and WRAT-3 Reading (r=0.63, P<0.001) scores in men but not women (P>0.05). Adjusting for age, AVD status, BMI, insulin, estrogen therapy and medications, higher Stroop Interference scores were associated with lower central systolic (r=-0.52, P=0.001), brachial systolic (r=-0.50, P=0.001) BPs and central PP (r=-0.31, P=0.05) in women but not men. Lower WRAT-3 Reading scores were associated with higher central (r=-0.44, P<0.01) and brachial PP (r=-0.50, P<0.01) in women only.

Conclusion: Higher central and brachial systolic BP and PP is selectively associated with weaker cognitive performance in postmenopausal women but not MA/O men independent of aortic stiffness and AVD.

Table 1 Displays demographic, vascular and cognitive performance data.

Mean ± SE	Men (n=68)	Women (n=67)	p-value
Demographics:			
Age (yrs)	66.3 ± 1.0	68.3 ± 1.0	0.14
Atherosclerosis Vascular Disease, no. (%)	46 (67.6)	27 (40.3)	0.001
Education (yrs)	15.1 ± 0.3	14.3 ± 0.3	0.08
Body Mass Index (kg/m ²)	29.9 ± 0.7	28.7 ± 0.8	0.25
Total cholesterol (mg/dL)	145 ± 3.8	177 ± 4.4	<0.001
HDL cholesterol (mg/dL)	47.5 ± 1.6	57.3 ± 2.2	<0.001
Triglycerides (mg/dL)	100 ± 5.7	117 ± 8.0	0.09
Glucose (mg/dL)	109 ± 3.3	95 ± 2.8	0.002
Total insulin uU/mL	10.9 ± 1.2	8.9 ± 1.0	0.22
Statins, no. (%)	38 (55.9)	29 (43.3)	0.15
Anti-hypertensives, no. (%)	48 (70.6)	38 (56.7)	0.10
Aspirin, no. (%)	46 (67.6)	39 (58.2)	0.12
Estrogen therapy at baseline, no (%)	-	7 (10.4)	<0.001
Vascular:			
Brachial systolic blood pressure (mmHg)	140 ± 2.1	133 ± 2.4	0.032
Brachial diastolic blood pressure (mmHg)	78 ± 1.2	68 ± 1.4	<0.001
Brachial pulse pressure (mmHg)	62 ± 2.4	65 ± 2.1	0.37
Mean arterial pressure (mmHg)	98 ± 1.1	89 ± 1.5	<0.001
Aortic systolic blood pressure (mmHg)	129 ± 2.2	125 ± 2.3	0.16
Aortic pulse pressure (mmHg)	51 ± 2	56 ± 2	0.13
cfPWV (m/sec)	10.5 ± 0.3	10.3 ± 0.24	0.54
Cognitive:			
<i>Global Cognitive Function:</i>			
RBANS Total Scale Score	98.6 ± 1.6	104.7 ± 1.5	0.007
WRAT-3 Reading Standard Score	103.6 ± 9.5	110.8 ± 4.1	0.09
<i>Memory:</i>			
RBANS Immediate Memory	96.6 ± 1.7	101.6 ± 1.9	0.06
RBANS Delayed Memory	99.3 ± 1.6	106.0 ± 1.4	0.002
<i>Processing speed:</i>			
Stroop Color Naming	67.0 ± 1.3	69.5 ± 1.8	
Stroop Word Reading	87.4 ± 1.7	91.1 ± 2.1	0.26
<i>Executive function/working memory:</i>			
Stroop Interference	33.1 ± 0.9	35.2 ± 0.9	0.11

All data are presented as mean ± SE. HDL, High-density lipoprotein, cfPWV, carotid femoral pulse wave velocity; RBANS, Repeatable Battery for the Assessment of Neuropsychological Status; WRAT, Wide Range Achievement Test.

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BILATERAL SYMMETRY OF BRACHIAL PULSE WAVEFORM ANALYSIS IN A CLINICAL POPULATION

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Background: Pulse waveforms are modified as they propagate along the arterial tree. Small differences in the arterial pathways from the heart to the left and right brachial artery may impact pulse waveform analysis (PWA) for the purpose of hemodynamic assessment. The VaSera VS-1500AU (Fukuda Denshi) is a cuff-based device that permits simultaneous acquisition of bilateral brachial pulse volume recordings. To determine if interchangeability between left and right brachial pulse waveforms is possible, we assessed whether there are significant differences in pulse waveform analysis variables between each arm.

Methods: In 20 subjects (mean age=67±11 years) from a clinical population, simultaneous pulse waveforms were acquired at both the left and right brachial