P177: ASSOCIATIONS OF AMBULATORY PULSE PRESSURE COMPONENTS WITH HIPPOCAMPAL VOLUME, WHITE MATTER HYPERINTENSITIES AND BRAIN INFARCTS

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To cite this article: Benjamin Gavish, Therese Tillin, Alun D. Hughes, Nishi Chaturvedi (2017) P177: ASSOCIATIONS OF AMBULATORY PULSE PRESSURE COMPONENTS WITH HIPPOCAMPAL VOLUME, WHITE MATTER HYPERINTENSITIES AND BRAIN INFARCTS, Artery Research 20:C, 86–86, DOI: https://doi.org/10.1016/j.artres.2017.10.125

To link to this article: https://doi.org/10.1016/j.artres.2017.10.125

Published online: 7 December 2019
Background: Compared to regular active breaks, prolonged uninterrupted sitting amplifies postprandial glucose and insulin in overweight/obese adults with and without type 2 diabetes; and impairs lower limb endothelial function (a predictor of cardiovascular disease) in healthy adults. However, the effects of prolonged sitting on endothelial function in those at heightened risk of cardiometabolic disease have not been investigated.

Methods: Overweight/obese (BMI > 25kg/m²) adults (35–75y) completed two laboratory-based conditions in a random order: (i) 5h prolonged uninterrupted sitting (SIT); and (ii) 5h sitting interrupted with 3min of light-intensity simple resistance activities every 30min (SRA). Femoral artery endothelial function (flow mediated dilation; FMD) and shear rate was assessed at baseline, 1, 2 and 5h. Hourly plasma was collected for glucose, insulin and endothelin-1 measurement. Muscle sympathetic nervous activity (MSNA) was measured at 5h.

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ASSOCIATIONS OF AMBULATORY PULSE PRESSURE COMPONENTS WITH HIPPOCAMPAL VOLUME, WHITE MATTER HYPERINTENSITIES AND BRAIN INFARCTS
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Background: Arterial stiffness is blood pressure (BP) dependent. Using 24-hour ambulatory BP monitoring (24hABPM) pulse pressure (PP) can be split into an ‘elastic’ part (elPP: ‘diastolic stiffness’), and a ‘stiffening’ part (stPP: ‘stiffness change during systole’). We investigated associations of elPP, stPP and PP with brain MRI measures.

Methods: A community-based sample of 542 individuals (59 ± 6y) with 24hABPM and brain MRI, including hippocampal volume (HPCMV), severity of White Matter Hyperintensities (WMH_SVR), and number of brain infarcts (N_INFRACT). ‘High’/’low’ (HI/LO) marked variables status (by medians).

Results: elPP and stPP were weakly correlated (r = 0.15); stPP-to-PP ratio was 0.21 ± 0.08. Adjusted HPCMV calculated at age quartiles for the HI_PP cohort correlated better with values from HI_stPP than from HI_elPP. For HI_PP and HP_stPP HPCMV reduction between age quartiles 1&4 was similar, but 20% larger than for HI_elPP. In hypertensives at highest age quartile HPCMV correlated negatively with stPP (P < 0.05: adjusted for age, diabetes, but not with PP and elPP. Adjusted WMH_SVR was greater in HI_elPP, HI_PP and HI_elPP comparing diabetics with non-diabetics by 0.38(P = 0.001), 0.29(P = 0.008) and 0.13 (P = 0.25), respectively.

In hypertensives N_INFRACT was greater in past-stroke than no-stroke cohorts in HIstLO elPP, stPP and PP subgroups by 1.96±0.63, 1.48±1.26, and 1.53±1.18 (P < 0.0001 for all).

Conclusion: The association of elastic and stiffening components calculated from ambulatory PP differ for different MRI brain measures and may provide a practical tool for associating arterial properties with brain-related pathological changes. Associations with PP may be mainly explained by its relatively-small stiffening component during systole.

Poster Session II – Interventions P89
UPRIGHT POSTURE ENHANCES THE UNFAVOURABLE INFLUENCES OF BISOPROLOL ON CENTRAL BLOOD PRESSURE IN HYPERTENSIVE MIDDLE AGED MEN: A DOUBLE-BLINDED RANDOMIZED PLACEBO-CONTROLLED CROSS-OVER STUDY
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Objective: Treatment with beta-blockers is characterised by inferior reduction of central versus peripheral blood pressure. We examined changes in central and peripheral blood pressure, cardiac function, and vascular resistance during beta-blockade.

Methods: Haemodynamics were investigated after 3 weeks of bisoprolol treatment (5mg/d) in a double-blind, randomized, placebo-controlled cross-over trial in never-treated 16 Caucasian males with grade I-II primary hypertension using continuous tonometric pulse wave analysis and whole-body impedance cardiography.

Results: Bisoprolol decreased blood pressure in the aorta (~8/10 mmHg) and radial artery (~10/9 mmHg), reduced heart rate and left cardiac