PO-28: CHANGES IN CEREBROVASCULAR PULSATILITY DURING AEROBIC EXERCISE ARE UNRELATED TO BRACHIAL-ANKLE PULSE WAVE VELOCITY IN CHRONIC STROKE

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Changes in cerebrovascular pulsatility during aerobic exercise are unrelated to brachial-ankle pulse wave velocity in chronic stroke

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tObjectives: Arterial stiffness contributes to increased cerebral hemodynamic pulsatility and independently predicts negative outcomes post-stroke. Exercise can contribute towards recovery after stroke, yet it is unclear whether arterial stiffness influences acute cerebrovascular responses to exercise. One study in healthy young men showed high-intensity resistance exercise increased stiffness and pressure pulsatility up to 30 minutes post-exercise without affecting cerebral hemodynamics. The influence during acute aerobic exercise, however, is unknown.

Methods: Participants were recruited 3 to 12 months post-stroke. BaPWV was assessed using the ROX Coupler device. Central blood pressure, central AI and AP assessed by applanation tonometry were also measured. BaPWV was assessed before and 4 months after AV fistula formation.

Results: Peripheral PP mmHg 82 88
C-f PWV m/s 15.2 13.7
Aix % 34% 27%
Central DBP mmHg 102 84
Central SBP mmHg 172 158
HR b/min 66 68
C-f PWV m/s 15.2 13.7
Peripheral MAP mmHg 130 113
Peripheral PP mmHg 82 88
Central PP mmHg 70 74

Conclusions: Insertion of the ROX Coupler was shown to produce a large reduction in APv which may not all be blood pressure dependent. These findings suggest that a mechanical solution to reduced arterial compliance may result in safe and effective lowering blood pressure, and address a mechanism of persistent hypertension unapproached by current therapy. Haemodynamic measurements in larger numbers of patients undergoing ROX Coupler insertion will be necessary to confirm this physiology and better appreciate its potential role in the prevention and treatment of the cardiovascular complications of hypertension.