P151: ARTERIAL STIFFNESS RESPONSE TO ACUTE AEROBIC AND RESISTANCE EXERCISE IN OLDER PATIENTS WITH CORONARY ARTERY DISEASE

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LOW CAROTID ARTERIAL STIFFNESS IN YOUNG TYPE1 DIABETIC PATIENTS COMPARED WITH AGE-MATCHED CONTROLS

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Background: Local pulse wave velocity (c) is widely used as an index of local carotid arterial stiffness. In middle-aged type1 and type2 diabetic patients, arterial stiffness is higher than in healthy people, but much less data are available for young subjects. Our aim was to quantify the changes in c associated with ageing and type1 diabetes in young patients.

Methods: Pressure and diameter waveforms of healthy control (n = 53, 29 male, mean age 39 ± 17) and type1 diabetic (n = 20, 15 male, mean age 19 ± 2.5) subjects have been acquired simultaneously using tonometry (500 or 1000Hz) and an ultrasound probe (1kHz) at the level of the left and right common carotid artery, respectively. The geometrical similarity between the right and left common carotid artery was verified, and the two signals were assumed as recorded at the same site. The PD2-loop method [1] was used to calculate c in late diastole as follow: c = D0dp/ d(D2).

Results: In controls, c remained approximately constant up to ages 35–44y, at ±4 m/s. From 45–54 years old, c increased up to 7m/s in elderly subjects (figure-left). In young diabetic subjects (15–24), c was lower than in aged-matched control subjects (mean ± 95% C.I., diabetic 3.51 ± 0.007 and control 3.78 ± 0.005, p < 0.05) (figure-right).

Conclusions: Local stiffness increases with age in the human carotid artery. As found for the descending thoracic aorta previously [2], younger T1 diabetic patients may have more compliant vessels initially, aggravating their tendency to stiffen later.

References