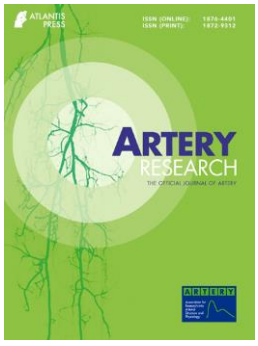

Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

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To cite this article: Alessandro Giudici, Carlo Palombo, Carmela Morizzo, Michaela Kozakova, Lorenzo Losso, Kennedy J. Cruickshank, Ashraf W. Khir (2018) P149: LOW CAROTID ARTERIAL STIFFNESS IN YOUNG TYPE1 DIABETIC PATIENTS COMPARED WITH AGE-MATCHED CONTROLS, Artery Research 24:C, 123–123, DOI: https://doi.org/10.1016/j.artres.2018.10.202

To link to this article: https://doi.org/10.1016/j.artres.2018.10.202

Published online: 7 December 2019

P149
LOW CAROTID ARTERIAL STIFFNESS IN YOUNG TYPE1 DIABETIC PATIENTS COMPARED WITH AGE-MATCHED CONTROLS

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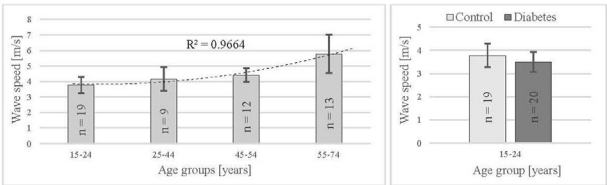
Background: Local pulse wave velocity (c) is widely used as an index of local carotid arterial stiffness. In middle-aged type1 and type2 diabetic patients, arterial stiffness is higher than in healthy people, but much less data are available for young subjects. Our aim was to quantify the changes in 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: $c = D0dP_{\rho}$ 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 (figure1-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, $p < 0.05$) (figure1-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.



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P150
THE IMPACT OF ARTERIAL STIFFNESS ON TROPONIN T LEVELS IN CHRONIC HAEMODIALYSIS PATIENTS

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Background: Troponin T (TnT) is a highly specific biomarker for myocardial infarction (MI). Haemodialysis (HD) patients often have increased arterial stiffness and elevated TnT. Previous studies have linked elevated TnT with worse outcome, even in the absence of MI. The aim of this study was to evaluate whether arterial stiffness affects TnT-levels in stable HD-patients.
Methods: Eighty-one HD-patients recruited as part of the SAFIR-study with urine output >300 mL/day, HD-vintage 30% were followed for 12 months with serial measurements of TnT using a high-sensitivity assay and carotid-femoral pulse wave velocity (cfPWV).
Results: At baseline, cfPWV was positively correlated with natural log-transformed TnT (logTnT) and by splitting cfPWV into tertiles (see Figure) the geometric baseline TnT-means with 95% confidence intervals (95%-CI) were: cfPWV12.5 m/s (n = 26): 59(44–78) ng/L (P = 0.03 in ANOVA-test for difference between groups). Baseline cfPWV-tertiles remained significantly correlated with logTnT in multivariate analysis (adjusted for haematocrit, EF, NT-proBNP, ultrafiltration volume and Charlson comorbidity index). Higher TnT-levels at baseline were associated with a higher risk of admission and cardiovascular events during follow-up with logTnT odds-ratios (95%-CI): 2.62(1.22–5.64) and 2.25(1.04–4.86). Increase in TnT over time was significantly correlated with increase in LV-mass and NT-proBNP and decrease in LVEF and late intradialytic stroke volume, but it was not significantly associated with increase in cfPWV.
Conclusions: Increased arterial stiffness was associated with higher TnT-levels. Rise in TnT over time was significantly correlated with deterioration of cardiac status.

Poster Session II – Special Populations II
P151
ARTERIAL STIFFNESS RESPONSE TO ACUTE AEROBIC AND RESISTANCE EXERCISE IN OLDER PATIENTS WITH CORONARY ARTERY DISEASE

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Introduction: Arterial stiffness is associated with coronary artery disease (CAD). Acute aerobic exercise decreases arterial stiffness, while acute resistance exercise increases arterial stiffness. There is little information on the effect of such exercise on arterial stiffness in older patients with CAD.
Purpose: We examined arterial stiffness, beta stiffness, central and brachial blood pressure after an acute aerobic compared to resistance exercise session in older patients with CAD.
Methods: We tested eighteen male patients with coronary artery disease aged 71.8 ± 10.2 years. Arterial stiffness was measured by PWV and beta-stiffness and both brachial and central blood pressures were obtained following 15minutes of supine rest and at 5,15,30 minutes after the aerobic and resistance exercise sessions on different and non-consecutive days. Aerobic session consisted of high intensity interval treadmill walking (10stages of 2minutes at 85–90% maximal heart rate, 1min rest). Resistance sessions consisted of 6 exercises, 3 sets, 8 repetitions at 70% of 1RM).
Results: An interaction effect was detected for central PWV($p \leq 0.005$), due to an increase in PWV following resistance session and a decrease in PWV following aerobic session. Controlling PWV for mean arterial pressure did not alter the results. Significant decreases 15min following aerobic exercise were also found in brachial systolic blood pressure and beta stiffness($p \leq 0.005$).
Conclusions: In these older CAD patients, aerobic exercise decreased PWV, while resistance exercise increased PWV, consistent with data on young healthy populations. However, beta stiffness did not increase after resistance exercise, suggesting the arterial segment measured, and/or the methodology used impacts the arterial response to resistance exercise in older CAD patients.

Table. Results before and after which exercise session

Variables	PWV, *m/s*	Beta Stiffness, *U*	MAP, *mmHg*
Resistance rest	8.8 ± 2.9	15.5 ± 9.9	82.8 ± 8.1
Aerobic rest	8.8 ± 1.3	12.2 ± 4.9	82.4 ± 7.3
Resistance 5min after	9.4 ± 2.1*	15.6 ± 7.8	83.2 ± 10.1
Aerobic 5min after	8.3 ± 1.2*	11.3 ± 2.8	84.5 ± 12.5
Resistance 15min after	10.2 ± 2.9*	15.1 ± 4.9	81.5 ± 8.3
Aerobic 15min after	8.2 ± 1.1*	10.7 ± 3.2*	79.5 ± 8.4*
Resistance 30min after	10.1 ± 2.6*	15.0 ± 5.2	81.2 ± 8.6
Aerobic 30min after	7.8 ± 1.3*	10.5 ± 3.2	79.0 ± 8.1

PWV – pulse wave velocity; MAP –mean arterial pressure
*p≤0.05 compared to rest