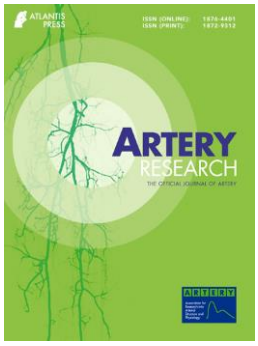

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P11.03: AORTIC STIFFNESS INDICES IN FIRST-EVER AND RECURRENT ISCHEMIC STROKE – A PRELIMINARY REPORT

D. Gasecki, A. Rojek, M. Kwarciany, K. Kowalczyk, P. Boutouyrie, W.M. Nyka, S. Laurent, K. Narkiewicz

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Children for whom primary care consultation for allergic disease had been sought, had a 14.9 μm (95%CI: 5.3 − 24.4) higher CIMT compared to children without allergies (adjusted for age, gender, parental smoking, gestational age, infant feeding and infections). Lifetime anti-histamine prescription was associated with a 11.7 MPa^{-1} (95%CI: -20.9 - -2.5) lower distensibility and a 23.4 kPa (95% CI: 6.9 − 39.9) higher EM. Recent anti-histamine prescription was associated with a 30.2 μm (95%CI: 10.2 − 50.2) higher CIMT. A positive parental allergy history was associated with a 8.4 μm (95%CI: 1.3 − 15.6) higher CIMT per allergic parent.
Conclusion: Allergies are associated with pre-atherosclerotic vascular changes in healthy young children.

P11.03
AORTIC STIFFNESS INDICES IN FIRST-EVER AND RECURRENT ISCHEMIC STROKE − A PRELIMINARY REPORT

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Background: Patients with acute ischemic stroke have higher aortic stiffness estimated by carotid-femoral pulse wave velocity (CF-PWV) and central augmentation index (cAIx) than control hypertensives. Whether CF-PWV and cAIx may distinguish patients with first-ever (FES) from those with recurrent ischemic stroke (RS) is unknown.
The aim of the study was to evaluate CF-PWV and cAIx in patients with the FES and RS as compared to control hypertensives, and to evaluate the relationship between these indexes and other clinical variables.
Methods: We studied 113 patients (82 males, 62.9±12.7yrs) with acute ischemic stroke, including 17 subjects with RS (13 males, 67.6±10.8yrs) and 71 controls (52 males, age 62.7±12.6yrs).CF-PWV, and cAIx were measured (SphygmoCor®) one week after stroke onset. Data were analysed with multivariate analysis.
Results: The mean CF-PWV was significantly higher in both RS and FES than in controls (12.5±3.5 vs. 8.6±1.3m/s, $P<0.00001$, and 10.2±2.8 vs. 8.6±1.3m/s, $P=0.004$ respectively). Moreover, the mean CF-PWV was significantly higher in RS compared to FES (12.5±3.5 vs. 10.0±2.8m/s, $P=0.01$). cAIx in RS (32.3±14.3mmHg) was similar to that in FES (28.5±11.7mmHg, $P=0.49$), but it was significantly higher compared to controls (25.2±10.3mmHg, $P=0.02$). In multivariate logistic regression analysis, higher CF-PWV remained significant after adjustment for age, SBP or HR, separately (Table).

Model	OR	95% CI	P value
Model 1 ($R^2=0.02$)			
Age	1.01	0.96 − 1.07	0.65
CF-PWV	1.23	1.01 − 1.50	0.04
Model 2 ($R^2=0.12$)			
SBP	0.97	0.93 − 1.01	0.1
CF-PWV	1.45	1.12 − 1.89	0.005
Model 3 ($R^2=0.08$)			
HR	1.01	0.96 − 1.06	0.75
CF-PWV	1.24	1.04 − 1.47	0.02

Conclusion: CF-PWV is higher in patients with recurrent stroke than in those with first-ever event independently of age and BP levels. These findings suggest that aortic stiffness might be implicated in progression of cerebrovascular disease in post-stroke patients.

P11.04
AORTIC AND VISCERAL FAT INFLAMMATION DETECTED BY POSITRON EMISSION TOMOGRAPHY/COMPUTED TOMOGRAPHY (PET/CT) DOES NOT CORRELATE WITH ARTERIAL STIFFNESS IN PATIENTS WITH A HISTORY OF CARDIOVASCULAR DISEASE

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Background: Arterial and systemic inflammation are associated with increased arterial stiffness in several patient groups. Visceral fat has been shown to contain inflammatory cells and is associated with increased cardiovascular risk. In this study we sought to investigate whether the degree of arterial and visceral fat inflammation correlated with arterial stiffness.
Methods: 46 patients with a history of atherosclerotic disease were imaged using fluoro-deoxyglucose positron emission tomography (FDG-PET) with CT co-registration. Uptake of FDG, directly reflects metabolic activity and is shown to correlate with macrophage activity. Tracer uptake was analysed in various arterial segments and visceral fat by measuring maximum standard uptake values (SUV). Arterial stiffness was determined by pulse wave velocity (PWV) using the Sphygmacor™ system. Pulse wave analysis was used to determine central blood pressure.
Results: There was no correlation between aortic PWV and ascending aortic SUV ($r=0.003$, $p=0.99$). Aortic PWV also did not correlate with visceral fat SUV ($r=0.09$, $p=0.57$) or abdominal aortic SUV ($r=0.058$, $p=0.844$). These values remained unchanged with arterial SUV blood correction. There was also no correlation between central blood pressure and aortic inflammation ($r=0.07$, $p=0.64$).
Conclusions: There was no relationship between FDG uptake, a surrogate of inflammation, in the aorta and within visceral fat, and aortic pulse wave velocity in patients with known cardiovascular disease.

P11.05
ABDOMINAL AORTIC ANEURYSMS EXHIBIT GREATER METABOLIC ACTIVITY DETECTED BY POSITRON EMISSION TOMOGRAPHY/COMPUTED TOMOGRAPHY (PET/CT) COMPARED TO MATCHED CONTROLS

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Background: Chronic inflammation is a hallmark characteristic in the pathophysiology of abdominal aortic aneurysms (AAA) and atherosclerosis. These two conditions also share a number of risk factors; however it is thought that their pathophysiologies are different. In this study we sought to prospectively investigate whether there was a greater degree of inflammation in the aortas of AAA patients compared to matched controls with atherosclerosis.
Methods: The aortas of 20 patients with infra-renal AAA and 20 age, sex and risk factor-matched controls with atherosclerotic disease were imaged using fluoro-deoxyglucose positron emission tomography (FDG-PET) with CT co-registration. Uptake of tracer directly reflects metabolic activity and has been shown to correlate with macrophage activity. Tracer uptake was analysed in various arterial segments by measuring maximum standard uptake values (SUV). Inflammatory biomarkers, including hsCRP, were also measured.
Results: The mean aneurysm diameter was 44mm (SD+/-9mm). Patients with AAA had higher uptake of FDG in the abdominal aorta compared with controls (SUV 2.19 vs. 1.99, $p=0.02$). The greatest uptake was seen in the aneurysmal sac (mean SUV 2.28 +/-0.55). AAA patients also had a higher level of serum inflammatory markers (hsCRP 2.76 vs. 1.74mg/L, $p=0.03$).
Conclusions: This study demonstrates there is greater in-vivo metabolic activity in patients with AAA. This suggests there is higher inflammatory cell load within the aortic wall in patients with AAA as reflected by higher levels of FDG uptake. This highlights the importance of targeting inflammation as a therapeutic strategy.

P11.06
COUPLING OF LEFT VENTRICULAR TWIST MECHANICS AND CENTRAL AUGMENTATION INDEX IN HEALTHY INDIVIDUALS

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Objectives: To explore the influence of aerobic fitness ($VO_{2\ max}$) on the relationship between left ventricular (LV) twist and vascular augmentation index (AIx) in young healthy individuals.
Background: Systolic LV twist and central vascular wave reflection (AIx) likely interact, however, the relationship between LV twist and AIx is not known. We hypothesised that the lower LV twist previously shown in endurance athletes with high $VO_{2\ max}$ would be associated with a lower AIx.
Methods: 28 healthy males (21±2 yrs) were split into a moderate and high aerobic fitness group ($VO_{2\ max}$: 49.0±4.9 and 62.7±6.8 ml/kg/min, respectively, $p<0.0001$). Heart rate, blood pressure, LV twist and AIx were assessed at rest and during exercise (40% of peak power). Differences in dependent