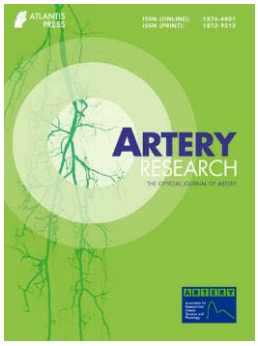

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P2.08: PREMATURE VASCULAR AGEING IN CYSTIC FIBROSIS?

J. Hull, R. Garrod, T. Ho, R. Knight, J. Cockcroft, D. Shale, C. Bolton

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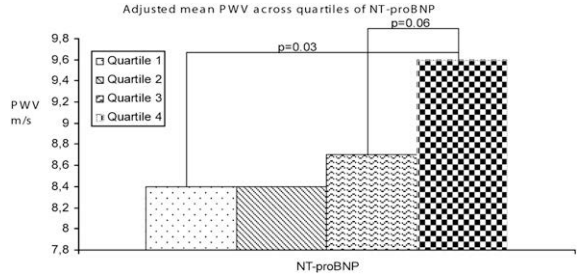

Conclusion: NT-proBNP is associated to levels of PWV in patients with RA.

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P2.07
INTERRELATIONSHIP BETWEEN AORTIC STIFFNESS AND PROTEINURIA IN CHRONIC KIDNEY DISEASE

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Aortic stiffness and proteinuria are cardiovascular risk factors. In several populations an association has been described between these factors. However, age is a strong determinant for both risk factors complicating the insight in dependencies. Therefore, we aimed to investigate whether dependencies between aortic stiffness and proteinuria exist in patients with chronic kidney disease (CKD) as in these patients renal disease is the leading cause for proteinuria.
In a cross-sectional setting 144 patients with severe to mild CKD (estimated Glomerular filtration rate (eGFR): >15 - ≤ 90 ml/min/1.73m^2 or bioptically proven renal disease) were investigated for aortic stiffness measured by carotid-femoral pulse wave velocity (C-F PWV) and proteinuria as determined by protein-creatinine ratio from morning spot urine. In stepwise linear regression analysis, C-F PWV predicted protein-creatinine ratio and *vice versa*. The diagnosis of proteinuria ($\geq$ 200 mg protein/g creatinine) was an independent predictor of C-F PWV, whereas C-F PWV did not predict the diagnosis of proteinuria.
This study demonstrates that the extent of aortic stiffness and proteinuria predict each other in a cohort of CKD similar to other populations. However, if the diagnosis of proteinuria is used as variable only apparent proteinuria predicts aortic stiffness, but not *vice versa*. This suggests that aortic stiffness is not consistently predicting proteinuria in CKD patients.

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P2.08
PREMATURE VASCULAR AGEING IN CYSTIC FIBROSIS?

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Background: Cystic Fibrosis (CF) is the most common autosomal recessive condition affecting Caucasians. Improved survival paralleled with a high prevalence of risk factors (diabetes and systemic inflammation) suggest that cardiovascular disease may become an important co-morbidity in CF, yet currently cardiovascular risk profiling is lacking. We hypothesised that augmentation index (Aix), a marker of arterial stiffness, would be increased in CF.
Methods: We studied 50 (33 male) adults with stable CF, mean (range) age 28.0 (16-46) yrs and 26 age/gender/BMI matched controls. We measured heart rate adjusted Aix, aortic pulse wave velocity (PWV) (SphygmoCor), blood pressure, spirometry (FEV_1 & FVC), glucose tolerance status, serum CRP and lipids.
Results: Height, MAP and PWV were similar however Aix was increased in patients and the difference to controls persisted following adjustment for gender, age, MAP and height. Aix was greatest in diabetic patients (n=13), 13.1 (4.3)%, but the non-diabetic sub-group still had greater Aix: 6.9(12.3)% than controls (ANOVA, $p<0.05$). CRP was increased in patients ($p<0.005$). In patients, Aix was inversely related to FEV_1 ($r=-0.43$) and FVC ($r=-0.54$), and directly with age ($r=0.54$), all $p<0.01$ and $\log_{10}$CRP ($r=0.33$, $p<0.05$).

	Controls	Patients
Total cholesterol (mmol/L)	4.4 (0.7)	3.7 (0.7)*
Peripheral MAP (mmHg)	91.7 (8.6)	94.1 (8.3)
Aix (%)	-1.8 (13.1)	8.5 (11.1)*
Aortic PWV (m/s)	6.1 (0.8)	6.4 (1.5)

Mean(SD).*$P<0.05$.
Conclusions: Aix was increased in adults with CF, independent of glycaemic status. This apparent vascular ageing may have important implications for surveillance and cardiovascular risk stratification of these patients.

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P2.09
INCREASED AUGMENTATION INDEX IN POST-COARCTECTOMY PATIENTS WITHOUT SIGNIFICANT RESTENOSIS

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Objectives: Despite successful surgical repair, post-coarctectomy patients suffer from early onset cardiovascular disease (CVD). Enhanced pressure wave reflections and increased arterial stiffness have been proposed to explain the increased risk of CVD. We therefore assessed arterial wave reflections and arterial stiffness in post-coarctectomy patients and matched controls.
Methods: We examined 10 post-coarctectomy patients aged 29 $\pm$7 yrs, 7 males, without significant restenosis and without antihypertensive treatment. Ten healthy age and gender matched subjects served as controls (age 26 $\pm$2 yrs, 6 males). Radial artery waveforms were recorded non-invasively by applanation tonometry using the Sphygmocor device. Aortic augmentation index (AIx) was calculated using a validated transfer function and corrected for heart rate. Pulse wave velocity (PWV) was measured between carotid and femoral arteries. All measurements were performed three times on the right and left side and were averaged.
Results: Post-coarctectomy patients had a higher right-sided (11.4$\pm$16.8 vs -12.4$\pm$8.8, $p<0.01$) and left-sided (22.5$\pm$7.9 vs -10.5$\pm$10.4, $p<0.01$) AIx compared to healthy controls. Carotid-femoral PWV showed no difference between patients and controls (right 5.7$\pm$0.9 vs 5.8$\pm$0.9, $p=0.70$; left 5.5$\pm$0.7 vs 5.7$\pm$0.8, p 0=.44).
Conclusions: Augmentation index is increased in post-coarctectomy patients. The finding of normal arterial stiffness combined with a distinct right to left difference in augmentation suggests that the enhanced wave reflection likely arises from early pulse wave reflection on the reconstructed aorta despite the absence of significant restenosis.

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P2.10
AMBULATORY ARTERIAL STIFFNESS INDEX IN TURNER SYNDROME: THE IMPACT OF SEX HORMONE REPLACEMENT

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Objective: Women with Turner syndrome (TS) face increased morbidity and mortality from congenital and acquired cardiovascular (CV) diseases. Traditional indices of unfavourable CV risk are increased in TS. However, the single most common syndrome-related feature remains estrogen deficiency. The present trial therefore aimed to investigate total CV risk in TS as expressed by ambulatory arterial stiffness index (AASI) and the influence of female sex hormone replacement therapy (HRT).
Design and Methods: Randomly recruited women with TS receiving HRT (n=26) were examined following wash-out and during 6 months of HRT in the form of cyclical estrogen and progestin. Age-matched normally menstruating female controls (n=24) were examined once. Parameters of effect