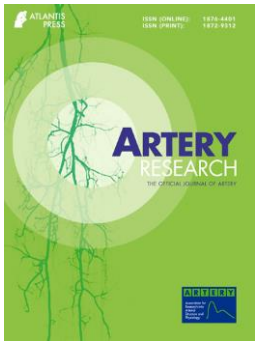

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P5.10: DISSOCIATION OF CARDIAC REMODELLING AND AORTIC STIFFNESS INDICES AS OF CARDIAC/VASCULAR RISK, AND THEIR RELATIONSHIP TO VITAMIN D3

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(twice), at 30 and at 75min post glucose intake. FMD was defined as the peak increase in diameter relative to baseline diameter ($\Delta D_{peak}/D_{baseline}$) and as the response/stimulus ratio: nFMD = FMD/($\Delta WSS_{mean}/WSS_{baseline}$). Subjects underwent this protocol twice, resulting in four baseline FMD measurements to estimate intra-class correlation coefficients, which were 0.57 and 0.63 for nFMD and FMD, respectively.

Effect of the oral glucose tolerance test: Comparison between nFMD and FMD

	baseline	30min	75min	p-value*
glucose [mmol/l]	4.7 ± 0.3	6.6 ± 1.0	5.9 ± 1.3	<0.001
nFMD [a.u.]	0.072 ± 0.056	0.029 ± 0.019	0.037 ± 0.035	0.001
FMD [%]	6.3 ± 2.7	5.1 ± 3.0	5.9 ± 3.4	0.068

*repeated ANOVA, n=22.

Conclusions: With nFMD, glucose induced changes in flow mediated dilation are better discriminated than by $\Delta D_{peak}/D_{baseline}$. These findings demonstrate the merit of stimulus normalisation in vascular intervention studies.

P5.09

AORTIC/PENILE INDEX IS A MARKER OF OCCULT CORONARY ARTERY DISEASE IN MIDDLE-AGED HYPERTENSIVE PATIENTS WITH ERECTILE DYSFUNCTION

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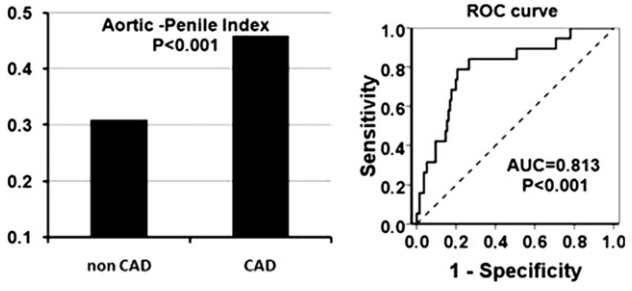
Background: It has been reported that there is a strict correlation between hypertension, erectile dysfunction (ED) and coronary artery disease (CAD), but the importance of an index to predict CAD in hypertensive ED patients needs to be addressed.
Methods: 155 consecutive asymptomatic non-diabetic treated hypertensive ED patients (40-60 y/o) were evaluated using exercise treadmill test and stress echocardiography. Men with positive one or both of the two tests were referred for coronary angiography in order to document CAD. All patients underwent penile Doppler ultrasonography and carotid–femoral pulse wave velocity (PWV) evaluation. Reduced penile peak systolic velocity (PSV) is associated impaired penile arterial function and increased atherosclerotic burden. Aortic/penile index (API) was developed to describe the severity of extracoronary vascular dysfunction with the formula: API=PWV/PSV.
Results: Coronary angiography revealed stenotic lesions in 19 (12%) patients. The prevalence of Grade II/III hypertension was not different between CAD patients and subjects without CAD. CAD patients compared to subjects without CAD had higher PWV (9.3 vs 8.6 m/s, P<0.01), lower PSV (23 vs 30 cm/s, P<0.01) and a higher API (left figure). Right figure illustrates the diagnostic performance of API for CAD prediction. Further analysis revealed that the area under the curve (AUC) for API was significantly greater than the AUC for either parameter alone (all P<0.05). **Conclusions**: API allows an accurate interpretation for the interrelationships between hypertension, ED and CAD and predicts CAD with high values of both sensitivity and specificity. Our findings allow identification of hypertensive men who might warrant more intensive follow-up.



P5.10

DISSOCIATION OF CARDIAC REMODELLING AND AORTIC STIFFNESS INDICES AS OF CARDIAC/VASCULAR RISK, AND THEIR RELATIONSHIP TO VITAMIN D3

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Aims: To investigate if concentric cardiac remodelling is related to central aortic Pulse Wave Velocity (aPWV) and to circulating vitamin D3, in men of different ethnic groups and cardiac/ vascular risk.
Methods: Community samples of 194 men, Afro-Caribbean (n=64, age: 54±10yr) at higher stroke but lower CHD risk, South Asian (n=68, 55±10yr) at high CHD risk and European (n=62, 57±9yr), reference risk, had standard echocardiographic LV geometry measurements, and aPWVAG by Arteriograph. In a sub-sample of 48, these indices were also measured by cardiac MR.
Results: Concentric geometry quantified as relative wall thickness (RWT>0.42) was commoner among AfC (59%) and SA (49%) than Europeans (24%) (p<0.001). RWT was by 0.05(0.01) higher in SA and AfC than in Europeans, as was Mass/Volume by MR.. Mean(SE) 25(OH)D3 in SA and AfC was 21(3) and 14(3) nmol/L < Europeans. In regression models, adjusting for age, systolic blood pressure (BP), diabetes and BMI, 25(OH)D negatively correlated with indices of left ventricle (LV) concentric geometry (RWT) by echocardiography. A 1SD (18 nmol/L) rise in 25(OH)D predicted a 0.23 SD drop in RWT (p=0.002). Adjusted for age, SBP and diabetes, 25(OH)D was also inversely related to aPWVAG , (B(SE)=-0.013(0.004), p<0.001). However, RWT & aPWVAG were poorly if 'significantly' correlated (r=0.18 p=0.01) & not in the smaller MR sample.
Conclusions: vitamin D status in AfC and SA compared to European men was negatively associated with both LV concentric remodelling and aPWV, although cardiac geometry and aPWV were poorly related themselves. Vitamin D intervention trials are required.

P5.11

EFFECT OF CAROTID BARORECEPTOR ACTIVATION ON VENTRICULAR FUNCTION AND CENTRAL ARTERIAL HEMODYNAMICS: A CASE REPORT BASED ON INVASIVE PRESSURE-VOLUME LOOP ANALYSIS

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Background: Carotid baroreceptor activation (CBA) is being explored as anti-hypertensive therapy in patient with resistant hypertension. In this study, we demonstrate the effect of CBA on cardiac performance and central arterial hemodynamics based on invasive data measured in a 78 year old male patient with resistant hypertension who also showed clinical symptoms of heart failure. **Materials and methods** Measurements were performed upon implantation of a CBA device (CVRx, Minneapolis, Mn), with a pressure-volume catheter inserted via the groin and advanced into the left ventricle (LV). Pressure-volume loops were acquired at baseline and with CBA (Figure-left). Upon catheter pullback, pressure recordings were made (baseline and CBA) in the aortic root (Figure-right). A flow waveform was derived from the volume data, and combined with the aortic root pressure to assess wave reflection via wave decomposition.
Results: CBA slowed heart rate from 64 to 46 bpm, reduced central systolic (from 165 to 107 mmHg) and pulse (92 to 56 mmHg) pressure, while stroke volume increased by about 30%. The LV end-diastolic pressure-volume relation was lowered (Figure-left), reducing end-diastolic pressure from about 19 to 13 mmHg. CBA lowered characteristic impedance by 40%, leading to a similarly large reduction in forward pressure wave amplitude (from 90 to 56 mmHg). Backward wave amplitude was lowered from 31 to 23 mmHg. **Conclusions** This in vivo case report demonstrates not only profound favourable effects of CBA on LV afterload, but a concomitant effect on LV filling dynamics which might particularly be important in patients with heart failure.