



## Artery Research

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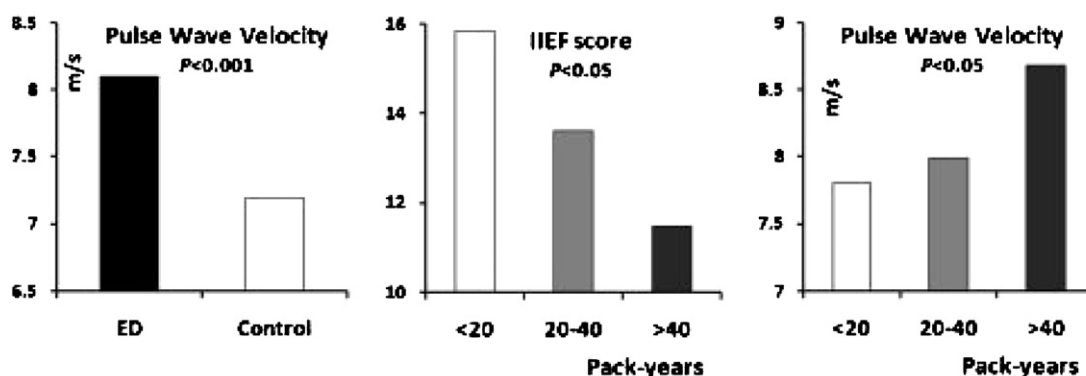
### **P3.05: ARTERIAL STIFFNESS MAY BE GREATER IN SOUTH ASIAN THAN AGE-MATCHED AFRICAN-CARIBBEAN MEN DESPITE SIMILAR PERIPHERAL OR CENTRAL BLOOD PRESSURE**

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with a significant decrease in IIEF score and higher PWV values (middle and right figure). **Conclusions:** Aortic elastic properties but not wave reflections are impaired in current smokers with ED compared to men without ED. ED patients who reported smoking more than 40 pack years had a significant impairment of erectile function and aortic elastic properties. This finding suggests that this group of patients may be at greater cardiovascular risk.

### P3.04

#### AORTIC STIFFNESS IS INDEPENDENTLY ASSOCIATED WITH WHITE COAT EFFECT

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**Introduction:** The difference between systolic blood pressure (SBP) measured in clinic and during the daytime phase of ambulatory BP measurement (ABPM) ( $\Delta$ clinic-day ABPM SBP) has been used as a measure of white-coat effect. We hypothesised that this was mediated through increased aortic stiffness resulting in greater increase in SBP from increased sympathetic activity in response to a hospital visit.

**Methods:** Patients enrolled in the Anglo-Cardiff Collaborative Trial between 2000-2009 underwent measurement of aortic stiffness by carotid-femoral pulse wave velocity (C-F PWV, Sphygmocor) and 24 h ABPM (Spacelabs-90207).  $\Delta$ clinic-day ABPM SBP was calculated. C-F PWV was adjusted for mean BP, and it was log-transformed for analysis due to non-parametric distribution.

**Results:** The total study population was 477 subjects, mean age  $45 \pm 20$  years, 44.9% male, 1.6% diabetic and 33.3% current or ex-smokers. Mean clinic BP was  $146 \pm 18/88 \pm 12$  and mean 24 h day ABPM was  $137 \pm 13/83 \pm 11$ . Log C-F PWV correlated with  $\Delta$  clinic-day ABPM SBP ( $\rho = 0.13$ ,  $P < 0.01$ ) and there was a significant trend for increased log C-F PWV with increased tertiles of increased  $\Delta$  clinic-day ABPM SBP ( $P < 0.01$ ). In stepwise multivariate analysis, independent determinants of  $\Delta$  clinic-day ABPM SBP were log C-F PWV, heart rate and age (total  $R^2 = 0.11$ ,  $P < 0.001$ ) while diabetes, gender, smoking and BMI were excluded.

**Conclusion:** Aortic stiffness is independently associated with the degree of rise of SBP between home and clinic in a population with a broad age range and low co-morbidity. This may have important implications for using clinic values of BP to guide antihypertensive treatment in patients with high aortic stiffness.

### P3.05

#### ARTERIAL STIFFNESS MAY BE GREATER IN SOUTH ASIAN THAN AGE-MATCHED AFRICAN-CARIBBEAN MEN DESPITE SIMILAR PERIPHERAL OR CENTRAL BLOOD PRESSURE

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For given levels of blood pressure (BP), people with 'stiffer' (less distensible) large arteries develop more cardiovascular (CVS) events, as is typical of diabetes. South Asians (SA) develop excess mortality from all CVS disease, African-Caribbeans (AfC) lower overall mortality despite more hypertension & consequent strokes, with excess diabetes in both groups. To unravel these ethnic differences in events, we compared brachial & central BP and indices

of arterial stiffness, as integrated markers of general risk factors, in samples of such men.

SA & AfC men aged 40-79y sampled from the European Male Ageing Study had aortic pulse wave velocity (aPWV) measured by a validated method (Arteriograph), and augmentation index (Alx) and estimated central BP by Sphygmocor and Arteriograph.

Mean ( $\pm$ SD) aPWV and Alx were higher among SA ( $n = 42$ , age:  $54 \pm 10$  yr) than in AfC ( $n = 53$ ,  $53 \pm 10$  yr):  $8.1 \pm 1.3$  vs.  $7.5 \pm 1.6$  m/s ( $p = 0.04$ ) and  $19 \pm 7$  vs.  $13 \pm 10\%$  ( $p = 0.002$ ), respectively, despite marginally lower brachial BP ( $124/77$  vs.  $130/80$  mmHg) or central systolic BP by Sphygmocor ( $116$  vs.  $118$  mmHg) or Arteriograph ( $126$  vs.  $127$  mmHg).  $R^2$  for the PWV/BP relationship was 20% for AfC, and 33% for SA.

In multivariate analysis, aPWV was 0.6 m/sec lower in AfC ( $p < 0.007$ ) adjusting for age, BP, diabetes status, lipid levels and body mass index. SA ethnicity also predicted higher Alx adjusted for these factors plus height.

**Conclusion:** For given levels of BP, SA men had higher aPWV/Alx than AfC. Arterial stiffness indices may describe total CVS risk better than distending pressures together with other standard RFs.

### P3.06

#### VASCULAR FUNCTION IN HIV-1 (SUBTYPE C) POSITIVE BLACK SOUTH AFRICANS WITH AND WITHOUT ARV TREATMENT: A THREE YEAR PROSPECTIVE STUDY

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The objective was to study the changes in vascular function of HIV-1 (subtype C) infected black Africans over three years.

In a longitudinal study (2005-2008) we compared the vascular function of 140 HIV+ (newly diagnosed) black Africans from the North-West province, South Africa. Seventy seven of the same HIV+ participants, received by choice no ARV treatment while 63 received treatment. Systolic (SBP), diastolic (DBP) blood pressure, heart rate (HR) (Omron HEM 757), and the pulse wave velocity (PWV) (Complior SP device) were determined. Sonar images were obtained with the MicroMaxx sonar device. Blood was analyzed with known methods to determine total cholesterol, high density lipoprotein (HDL-c), low density lipoprotein (LDL-c), triglycerides (TG), glucose and C-reactive protein (CRP).

Blood pressure increased significantly (dependent T-test) if the HIV+ (2005) were compared to the 2008 participants (received ARV's). The PWV showed no significant changes in both groups. Although the weight stayed constant over three years, the waist circumference increased significantly in the ARV treated group. The HDL-c decreased significantly from  $1.37$  to  $0.83$  mmol/L in the treatment naive group and the HDL-c showed no changes in the treatment group compared to the 2005 participants. The CRP was high in both groups.

To conclude: the ARV treatment group showed lipodystrophy, an increase in blood pressure and a lower plaque score ( $6.5\%$  vs  $10.5\%$ ). It seems that ARV treatment stabilizes the lipids and results in a higher blood pressure, whereas in the treatment naive group a significant decrease in HDL - cholesterol over three years were encountered.