P1.13: ETHNIC DIFFERENCES IN WAVE INTENSITY AND ARTERIAL STIFFNESS IN THE CAROTID ARTERY

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Conclusions: In line with experimental studies in animals and high heritability of carotid IMT, we demonstrated that IMT was associated with genetic variations in several interleukin components.

P1.11
CENTRAL SYSTOLIC AUGMENTATION INDEXES AND URINARY SODIUM IN A WHITE POPULATION
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Background: The association between cardiovascular health and salt intake
remains controversial.
Methods: In 630 participants (mean age 40.6 years; 51% women), randomly
recruited from a Flemish population, we measured sodium and creatinine in
24 hour urine samples at baseline and follow-up (median, 9.7 years) and the
carotid and aortic augmentation indexes (AI) standardized to heart rate at
follow-up only.
Results: The carotid AI (130.2% vs 113.7%) and aortic AI (145.7 vs 127.4)
differences persisted after multivariate adjustment for age, sex, heart
rate, systolic blood pressure, fasting blood glucose and insulin concentra-
tions.

P1.12
ETHNIC DIFFERENCES IN LEFT VENTRICLE MYOCARDIAL OXYGEN
DEMAND
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Background: There are marked inter-ethnic differences in coronary heart
disease (CHD). Indian Asians (IA) have 50% greater and African Caribbeans
(AC) 50% less CHD than white Europeans (E) in the UK. Reasons for this are
unclear. We compared ventricular structure and function, specifically
myocardial oxygen demand, by ethnicity.
Methods and Results: 3D-echocardiography (Philips IE33) and radial applana-
tometry (SphygmoCor) were performed on 800 men and women (age
55-85) from the Southall And Brent REvisited (SABRE) tri-ethnic population-
based cohort. Left ventricular mass index (LVMi) was measured, and 3D
remodelling index (LVRi) was calculated as LV mass/LV end diastolic volume.
3D cardiac output (CO) and total peripheral resistance (TPR) were calculated
and 3D LV end systolic active fibre stress (AFS) and wasted effort (Ew) were
derived as markers of myocardial oxygen demand. LWMi did not differ between E and AC but was significantly lower in IA. LVRi was greatest in AC and smallest in IA. IA and AC had lower CO and higher TPR
compared to E. AFS and Ew were significantly higher in IA. These ethnic
differences persisted after multivariate adjustment for age, sex, heart
rate, systolic blood pressure, fasting blood glucose and insulin concentra-
tions and medication.

Conclusions: AC have comparable LVM and myocardial oxygen demand to E.
In contrast IA generate significantly more AFS and Ew despite having less
myocardial muscle. This implies that IA have increased myocardial oxygen
demand which may increase susceptibility to myocardial ischemia, and
which could contribute to their excess risk of CHD.

Table 1 Data are mean±SE by ethnicity (adjusted for age). * =
<0.05 *** = <0.01 compared with Europeans by post hoc test following
ANOVA.

<table>
<thead>
<tr>
<th></th>
<th>European</th>
<th>Indian Asian</th>
<th>African Caribbean</th>
<th>ANOVA P</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>372</td>
<td>294</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>LVMi (g/m²)</td>
<td>29.7±0.3</td>
<td>28.2±0.4*</td>
<td>29.6±0.6</td>
<td>0.02</td>
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<tr>
<td>LVRi</td>
<td>1.52±0.02</td>
<td>1.48±0.02</td>
<td>1.60±0.03*</td>
<td>0.005</td>
</tr>
<tr>
<td>CO (L)</td>
<td>3.5±0.04</td>
<td>3.1±0.05*</td>
<td>3.01±0.07**</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>TPR(mmHg/L)</td>
<td>29.5±0.05</td>
<td>33.4±0.5**</td>
<td>36.1±0.8**</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>AFS(kPa)</td>
<td>22.6±0.5</td>
<td>24.3±0.6*</td>
<td>22.2±0.8</td>
<td>0.04</td>
</tr>
<tr>
<td>Ew(dyne/s/cm² 10⁵)</td>
<td>45±1</td>
<td>52±2*</td>
<td>49±3</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

P1.13
ETHNIC DIFFERENCES IN WAVE INTENSITY AND ARTERIAL STIFFNESS IN
THE CAROTID ARTERY
C. M. Park, K. March, T. Tillin, N. Chaturvedi, A. D. Hughes
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Background: In comparison with Europeans (E) in the UK, Indian Asian (IA)
people have a 1.5 to 2-fold elevated risk of cardiovascular disease (CVD),
and the risk of stroke is more than 2-fold higher in African Caribbean (AC)
people. Arterial stiffness and wave reflections influence the development
of CVD. We therefore investigated whether there are ethnic differences in
wave intensity and arterial stiffness that might play a role in the increased
risk of CVD.
Methods and Results: 260 participants, aged 59-82years in the Southall And
Brent REvisited (SABRE) population-based study had wave intensity analysis
and measurement of stiffness index (β) performed in the left common
carotid artery using an Aloka SSD 5500 ultrasound system (ALOKA, Japan)
equipped with a 7.5MHz linear array vascular probe and a combined colour
Doppler and echo-tracking system. The intensity of the forward compression
wave (FCW) due to left ventricular ejection was significantly increased in IA.
The peak intensity of the reflected (backward) compression wave (BCW) was
significantly larger in AC. β was significantly higher in both IA and AC. The
ethnic differences in the FCW and β persisted after adjustment for key
CVD risk factors (Model 2).
Conclusion: Both IA and AC have adverse wave intensity and arterial stiff-
ness patterns, independent of conventional CVD risk factors, that may
contribute to the increased risk of CVD in IA and AC.

Data are presented as mean±SE and ANCOVA was performed to examine
differences between ethnic groups; * = p<0.05 *** = p<0.01. Model 1:
adjusted for age. Model 2: adjusted for age, sex, heart rate, height, smoking
status, diabetes, hypertension and CVD.