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P3.18: ENDOTHELIAL FUNCTION BUT NOT IN INTIMA-MEDIA THICKNESS RELATES TO RENIN STATUS IN A MULTI-ETHNIC GROUP OF YOUNG HEALTHY ADULTS

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1.269, $p=0.038$). Male, diabetes, hypertension, low HDL-C and smoking were also significant independent predictors of events.

Conclusion: CAVI is an independent predictor of cardiovascular events in subjects with coronary risks.

P3.17 EFFECT OF HYPERTENSION ON ARTERIAL STIFFNESS IN GHANAIAN SUBJECTS WITH TYPE 2 DIABETES

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Background: Hypertension exacerbates cardiovascular disease in type 2 diabetes (T2DM) but the ACCORD trial suggested limited impact on CVS events by hypertensive treatment. Our hypothesis is that arterial stiffness, measured as aortic pulse wave velocity (PWV) may underlie these events. Few data exist on arterial stiffness in hypertensive diabetes patients in sub-Saharan Africa, where the two conditions are becoming epidemic. We compared indices of arterial stiffness in T2DM subjects with (T2DM+HT), without (T2DM-HT) hypertension and normotensive non-diabetes (NDM).

Methods: Forty eight T2DM+HT, 45 T2DM-HT and 34 NDM volunteers (as screened by OGTT), between the ages of 40-70 years, were randomly recruited. Weight, height and waist circumference (WC) were measured. Indices of arterial stiffness, pulse wave velocity (PWV), aortic systolic blood pressure (aSBP), and aortic augmentation index (aAIx) were measured with Arteriograph (Tensiomed, Hungary) and Cardio-Ankle Vascular Index (CAVI) with Vasera 1500 (Fukuda-Denshi, Tokyo, Japan) in supine subjects after 10 minutes rest in a temperature controlled room.

Results: In a univariate analysis, after adjusting for gender, age in decade, BMI and waist circumference, mean values of CAVI (8.43 ± 1.31 vs. 7.4 ± 1.05 vs. 7.00 ± 0.87 ; $p < 0.001$), PWV (9.16 ± 1.04 vs. 7.98 ± 1.28 vs. 7.64 ± 1.42 ; $p < 0.001$), aSBP (153.94 ± 25.62 vs. 115.72 ± 11.11 vs. 117.06 ± 11.11 ; $p < 0.001$) and aAIx (28.53 ± 12.43 vs. 19.18 ± 11.47 vs. 26.21 ± 14.08 ; $p = 0.026$) were higher in T2DM+HT than T2DM-HT, which was also higher than NDM. Contrast analysis showed no significant difference between aSBP between T2DM-HT and NDM.

Conclusion: Hypertension increases arterial stiffness in T2DM subjects in Ghana.

P3.18 ENDOTHELIAL FUNCTION BUT NOT IN INTIMA-MEDIA THICKNESS RELATES TO RENIN STATUS IN A MULTI-ETHNIC GROUP OF YOUNG HEALTHY ADULTS

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Subjects of African and African-Caribbean ethnicity have been reported to have lower plasma renin activity (PRA), decreased endothelium-dependent vasomotor function and increased intima-media thickening relative to white European subjects. We explored whether vascular structure and function might be associated with renin status, since both may be influenced by endothelium-derived nitric oxide (NO). Flow mediated dilation (FMD, a measure of endothelium-derived NO) of the brachial artery and common carotid intima-media thickness (CIMT) were measured using high resolution ultrasound in a multi-ethnic group of 143 subjects (mean \pm SD 30 ± 10 years) including 84 black subjects of African or African-Caribbean self defined ethnicity; the remainder were of white European ethnicity. Subjects were additionally characterized by anthropometric and biochemical measurements including plasma renin activity (PRA) and underwent ambulatory blood pressure monitoring. PRA was lower (0.6 ± 0.67 vs. 0.9 ± 0.6 $\text{ng ml}^{-1} \text{hr}^{-1}$, medians \pm IQR, $P < 0.092$) and IMT greater (0.47 ± 0.09 vs. 0.43 ± 0.08 mm) in black compared to white subjects. FMD tended to be lower in black compared to white subjects but the difference was not significant. FMD was independently correlated with PRA after adjustment for age, ethnicity, sex and blood pressure (standardized regression coefficient 0.31, $P < 0.005$). However, IMT was not significantly correlated with FMD nor with PRA. These results suggest that availability of endothelium-derived NO is closely associated with PRA but does not explain ethnic differences in CIMT.

P3.19 AORTIC PULSE PRESSURE BETTER PREDICTS INCREASES ARTERIAL STIFFNESS COMPARED TO BRACHIAL AND AMBULATORY MEASUREMENTS

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Objectives: Hypertension is associated with increased arterial stiffness, which is an independent predictor of cardiovascular risk. Aortic systolic blood pressure (SBP) and/or pulse pressure (PP) better predicts cardiovascular events than peripheral blood pressure. The present study compared the discriminative ability for increased arterial stiffness of aortic BP with ambulatory peripheral BP, with reference to office brachial SBP or PP in never treated hypertensives.

Methods: We enrolled 619 consecutive essential hypertensives (mean age 52.2 ± 12.0 years, 325 men). Arterial stiffness was determined with carotid-femoral pulse wave velocity (PWV) using the Complior[®] device. Aortic pressures were measured using the Sphygmocor[®] device and 24h ambulatory SBP and PP were obtained from 24h ambulatory blood pressure monitoring. We employed dichotomous outcome variable (PWV ≥ 75 th percentile [8.55 m/s]). Receiver operating characteristic (ROC) curves were generated to evaluate the ability of the pressures to discriminate subjects with and without significant arterial stiffness (PWV ≥ 75 th percentile [8.55 m/s]).

Results: All different types of blood pressure significantly discriminated subjects with significant arterial stiffness (all $p < 0.001$). Aortic pulse pressure had the highest area under the curve (AUC=0.741) and 24h ambulatory SBP the lowest (AUC=0.655). (Figure, Table).

Conclusions: PP is more valuable than SBP pressure in the prediction of increased arterial stiffness. Moreover, aortic PP may better predict increased arterial stiffness than brachial or ambulatory BP measurements.

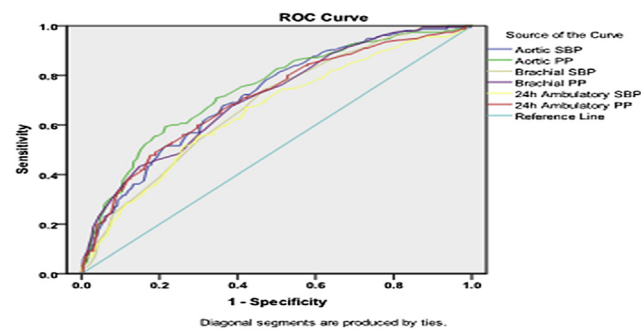
Variable	AUC	95% CI
Aortic pulse pressure	0.741*†‡§	0.696–0.786
Aortic systolic blood pressure	0.717*†	0.672–0.762
Brachial pulse pressure	0.710*	0.664–0.756
Brachial systolic blood pressure	0.681*¶	0.634–0.727
24h ambulatory pulse pressure	0.705*†	0.657–0.753
24h ambulatory systolic blood pressure	0.655*#¶§	0.605–0.705

* $P < 0.001$ compared to the null hypothesis that the AUC is 0.5 and the examined variables cannot discriminate subjects with low or high pulse wave velocity values.† $P < 0.05$ compared to 24h ambulatory systolic blood pressure# $P < 0.05$ compared to 24h ambulatory pulse pressure.

‡ $P < 0.05$ compared to brachial systolic blood pressure.

¶ $P < 0.05$ compared to aortic pulse pressure.

§ $P < 0.05$ compared to aortic systolic blood pressure.



P3.20 CLINICAL SIGNIFICANCE OF AMBULATORY ARTERIAL STIFFNESS INDEX (AASI) IN YOUNG STAGE 1 HYPERTENSIVE' S

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