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P10.4: EARLY LIFE PREDICTORS OF BLOOD PRESSURE IN AFRO-CARIBBEAN YOUNG ADULTS: THE JAMAICA 1986 BIRTH COHORT STUDY

T. Ferguson, N. Younger-Coleman, M. Tulloch-Reid, J. Knight-Madden, N. Bennett, M. Samms-Vaughan, D. Ashley, A. McCaw-Binns, O. Molaodi, J.K. Cruickshank, S. Harding, R. Wilks

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in several population-based studies participating in the MARE (Metabolic syndrome and Arteries REsearch) Consortium the occurrence of specific clusters of MetS differed markedly across Europe and the US. The aim of the present study was to investigate whether specific clusters of MetS are consistently associated with stiffer arteries in different populations. We studied 20,570 subjects from 9 cohorts representing 8 different European countries and the US participating in the MARE Consortium. MetS was defined in accordance with NCEP ATP III criteria as the simultaneous alteration in ≥ 3 of the 5 components: abdominal obesity (W), high triglycerides (T), low HDL cholesterol (H), elevated blood pressure (B), and elevated fasting glucose (G). PWV measured in each cohort was "normalized" to account for different acquisition methods. MetS had an overall prevalence of 24.2% (4985 subjects). MetS accelerated the age-associated increase in PWV levels at any age, and similarly in men and women. MetS clusters TBW, GBW, and GTBW are consistently associated with significantly stiffer arteries to an extent similar or greater than observed in subjects with alteration in all the five MetS components-even after controlling for age, sex, smoking, cholesterol levels, and diabetes mellitus-in all the MARE cohorts. In conclusion, different component clusters of MetS showed varying associations with arterial stiffness (PWV)

P10.2

ARE INTERMEDIATE ANKLE-BRACHIAL INDEX VALUES IMPORTANT IN HYPERTENSION? INSIGHTS FROM A LARGE COHORT OF NEVER-TREATED HYPERTENSIVES

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Objective: Ankle brachial index (ABI) is a diagnostic tool for peripheral arterial disease; moreover it has a prognostic value for future events. However, the role of intermediate ABI values (0.9 to 1.3) is still unclear. We investigated the interplay of intermediate ABI values with indices of subclinical organ damage in a large cohort of newly diagnosed, never treated hypertensives.

Design and Method: 1,127 newly diagnosed, never-treated hypertensives were recruited. ABI was measured with the oscillometric method and subjects with ABI <0.9 or >1.3 were not included. cPWV, central BPs, Alx, left ventricular mass index (LVMI), CRP and eGFR were measured. The 10-year risk was calculated using the Framingham Risk Score.

Results: The cohort was young (age: 53 ± 12 years old), with mild-moderate hypertension (systolic BP: 151 ± 18 mmHg, diastolic BP: 90 ± 11 mmHg) and mean ABI value 1.15 ± 0.08 . 57.7% were men, 41.3% smoked and 5.9% were diabetics. Left ventricular hypertrophy was detected in 42.2% and the 10-year CVD risk was $15.9 \pm 9.6\%$. ABI correlated with cPWV, central systolic BP, Alx, LVMI and CRP (r : -0.182, -0.268, -0.195, -0.075, -0.152 respectively, $p < 0.01$ for all). The 10-year risk increased with lower ABI values ($r = -0.077$, $p < 0.01$). After adjusting for confounders, patients with LVH had higher ABI levels; lower ABI values were observed with worsening eGFR (Figure).

Conclusion: Intermediate ABI values carry prognostic information; they are related to large artery stiffness, impaired central hemodynamic indices, LVH, renal function impairment and 10-year risk of CVD. ABI measurements should be part of an integrated approach to hypertensive patients for both diagnostic and prognostic reasons.

P10.3

ARTERIAL STIFFNESS IS A BETTER PREDICTOR OF LEFT VENTRICULAR HYPERTROPHY THAN THE FRAMINGHAM RISK SCORE AND CENTRAL HEMODYNAMICS: INSIGHTS FROM 1,141 NEVER-TREATED HYPERTENSIVES

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Objective: Left ventricular hypertrophy (LVH) heralds target organ damage and calls for aggressive therapeutic approaches. We investigated the predictive ability of arterial stiffness, central hemodynamic indices and the Framingham Risk Score (FRS) for detecting LVH.

Design and Method: 1,141 newly diagnosed, never-treated hypertensives were recruited. cPWV, aortic BPs and Alx were measured. Left ventricular mass index (LVMI) was calculated according to the Devereux formula. LVH was defined as LVMI >95 g/m² (women) and >115 g/m² (men). The 10-year risk for CVD was calculated using the FRS.

Results: The cohort was young (age: 53 ± 12 years), with mild-moderate hypertension (BP: $151 \pm 18 / 90 \pm 11$ mmHg). LVH was detected in 43% of patients and 10-year CVD risk was $16.1 \pm 9.7\%$. LVMI had a stronger correlation with cPWV ($r = 0.39$, $p < 0.001$) compared to aortic SBP ($r = 0.33$, $p < 0.001$), pulse pressure ($r = 0.306$, $p < 0.001$) and Alx ($r = 0.121$, $p < 0.001$). After adjusting for diabetes mellitus presence, eGFR, aortic SBP, cholesterol and 10-year CVD risk, cPWV remained an independent predictor of LVMI ($R^2 = 0.243$, $B = 1.60$, $p < 0.001$). In ROC analysis, cPWV emerged as a better predictor of LVH (AUC: 0.735, $p < 0.001$) compared to the FRS (AUC: 0.727, $p < 0.001$), aortic SBP (AUC: 0.687, $p < 0.001$), aortic pulse pressure (AUC: 0.705, $p < 0.001$) and Alx (AUC: 0.649, $p < 0.001$).

Conclusion: In newly diagnosed, never-treated hypertensives, cPWV is associated with LVMI and is a better predictor of LVH than the FRS, aortic BPs and Alx. High cPWV values signify target organ damage, which extends beyond large artery stiffness and herald LVH. This has implications for risk stratification and choice of antihypertensive therapy.

P10.4

EARLY LIFE PREDICTORS OF BLOOD PRESSURE IN AFRO-CARIBBEAN YOUNG ADULTS: THE JAMAICA 1986 BIRTH COHORT STUDY

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Objective: In this study we examined the effects of birth weight (BWT) and early life socioeconomic circumstances (SEC) on systolic and diastolic blood pressure (SBP, DBP) among Jamaican young adults.

Study Design and Setting: Longitudinal study of 364 men and 430 women from the Jamaica 1986 Birth Cohort Study. Information on maternal SEC at birth and BWT were linked to information collected at 18-20 years old. Sex-specific multilevel linear regression models were used to examine whether adult SBP and DBP were associated with BWT and maternal SEC.

Results: In unadjusted models, SBP was inversely related to BWT z-score in both men and women ($\beta = -0.82$ and -1.18 , respectively) but achieved statistical significance for women only. After adjustments for current age, current BMI, current height, maternal age and mother's occupation at child's birth, a one standard deviation (SD) unit increase in BWT was associated with 1.16 mmHg reduction in SBP among men (95%CI -2.15, -0.17; $p = 0.021$) and a 1.34 mmHg reduction in SBP among women (95%CI -2.21, -0.47; $p = 0.003$). High maternal occupational SEC at birth was consistently associated with lowest SBP across the standardized BWT distribution. SBP was 2-4 mmHg lower among those with high SEC mothers at birth than among those whose mothers were unemployed at birth.

Conclusion: SBP at 18-20 years-old was lowest among those whose mothers had high SEC at birth and was inversely related to BWT.

P10.5

WITHDRAWN

P10.6

ARTERIAL WAVEFORM MEASURES IN THE VITAMIN D ASSESSMENT (VIDA) STUDY: RELATIONSHIPS WITH LIFESTYLE AND CARDIOVASCULAR FACTORS

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Objectives: Identifying determinants of aortic waveform measures may help to define suitable strategies for improving arterial function. Our aim was to examine associations between lifestyle/cardiovascular risk factors variables and waveform measures as little is known about these.

Methods: Cross-sectional (baseline) analysis of 4830 adults aged 50-84 years participating in a vitamin D trial. Demographic and lifestyle variables were collected from questionnaires. Body mass index (BMI), cholesterol and brachial blood pressure (BP) were measured. Aortic systolic