P45: RENIN AT DIFFERENT PHYSICAL ACTIVITY LEVELS IN A BI-ETHNIC POPULATION: THE AFRICAN-PREDICT STUDY

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Conclusions: In hypertensive patients age appears to be the major determinant of TOD, with central SBP, and marginally peripheral SBP, PWV and AIX, also playing a significant role. Our results suggest that estimation of 24-hour central hemodynamics and arterial stiffness in ambulatory conditions may help improve the individualized assessment of the BP-associated TOD.

References

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RENN AT DIFFERENT PHYSICAL ACTIVITY LEVELS IN A BI-ETHNIC POPULATION: THE AFRICAN-PREDICT STUDY
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Background and objectives: It is widely accepted that regular physical exercise reduces the BP, particularly in hypertensive individuals. It is recommended in the prevention of hypertension to assist in BP control. The BP lowering mechanisms of exercise remain largely elusive, we therefore evaluated the RAAS as a regulator of arterial BP.

Methods: The sub-study was embedded in the African Prospective study on the Early Detection and Identification of Cardiovascular disease and Hypertension (African-PREDICT) and included 111 white and 99 black participants aged 20–30 years.

Results: The BP decreased significantly in the white but not in the black participants when tertiles for physical activity levels were compared. The total renin (renin + prorenin) level decreased significantly from 789.2 to 700.0 pg/ml; p < 0.001). Bivariate models showed men had higher arterial stiffness (p < 0.001). Maternal height (p = 0.031), waist/hip ratio (p = 0.019), BMI (p = 0.001) and blood pressure (systolic and diastolic) (p < 0.001) were associated with PWV, but only BMI (p < 0.001) was associated with CAVI. There was no association between birthweight and PW or CAVI, p = 0.38 and p = 0.41 respectively. In multivariable models, associations between birthweight and PW and CAVI did not change after controlling for gender, BMI, and SBP. Positive associations (coeff. ± SE) between PW and BMI (0.03 ± 0.01 p = 0.001) and SBP (0.03 ± 0.01 p = 0.001) remained significant; as did the negative associations for BMI and CAVI (−0.04 ± 0.01 p < 0.001).

Conclusion: Men had higher arterial stiffness even when controlling for blood pressure and the associations of blood pressure and BMI with PWV were positive whereas and BMI with CAVI was negative. Neither arterial stiffness measure was associated with birthweight.

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ARTERIAL STIFFNESS IN RELATION TO BIRTH CHARACTERISTICS IN THE JAMAICAN 1986 BIRTH COHORT
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Background: We tested the association between birthweight and arterial stiffness measured by aortic pulse wave velocity (PWV) and carotid-ankle vascular index (CAVI) in a birth cohort of 30 year old Jamaicans.

Methods: Participants were from the 1986 Jamaica Birth Cohort. Arterial stiffness was measured as PWV using Arteriograph 24™ and CAVI with VaSera™ devices. Current anthropometry (height, weight, waist and hip circumference), and brachial blood pressure measures were linked to birthweight and other early life markers of CVD risk (birth-length and maternal height). Linear regression models were used for analysis.

Results: Analyses included 235 participants 44% male, with mean ± SD age 29.8 ± 0.7 years, birthweight 3.1 ± 0.0 kg. PWV 6.3 ± 1.8 m/s and CAVI 3.0 ± 1.1. Bivariate models showed men had higher arterial stiffness (p < 0.001). Maternal height (p = 0.031), waist/hip ratio (p = 0.019), BMI (p < 0.001) and blood pressure (systolic and diastolic) (p < 0.001) were associated with PWV, but only BMI (p < 0.001) was associated with CAVI. There was no association between birthweight and PW or CAVI, p = 0.38 and p = 0.41 respectively. In multivariable models, associations between birthweight and PW and CAVI did not change after controlling for gender, BMI, and SBP. Positive associations (coeff. ± SE) between PW and BMI (0.03 ± 0.01 p = 0.001) and SBP (0.03 ± 0.01 p = 0.001) remained significant; as did the negative associations for BMI and CAVI (−0.04 ± 0.01 p < 0.001).

Conclusion: Men had higher arterial stiffness even when controlling for blood pressure and the associations of blood pressure and BMI with PWV were positive whereas and BMI with CAVI was negative. Neither arterial stiffness measure was associated with birthweight.

Reference

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SEX DIFFERENCES IN AMBULATORY CENTRAL BLOOD PRESSURE AND PULSE WAVE REFLECTIONS IN UNTREATED PATIENTS
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