THE INTERACTIVE EFFECT OF BODY SIZE AND RENIN-ANGIOTENSIN AXES ON BLOOD PRESSURE RESPONSE TO ORAL SALT LOADING IN UNTREATED AFRICAN-AMERICANS.

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We examined the interactive effect of body size and renin-angiotensin axes on changes in BP after oral salt supplementation in 106 normotensive (average age 25 to 64 years). The Sodium and Blood Pressure Study (SBPS) was a 24-week, two period, randomized, double-blind cross-over trial to determine the impact of dietary sodium manipulations on BP and other biochemical measures. The randomized treatment sequence consisted of dietary sodium supplementation (100 mmol) followed by placebo or the reverse sequence: all treatment periods, including placebo-washout, were 8 weeks in duration. BP change was defined as the BP level above the median of 112±13 mm Hg for men and 88±12 mm Hg for women). Variability-adjusted BP change was defined as unadjusted BP change divided by the intraperson SD of 3 BP measurements over 1 month prior to dietary intervention. We previously reported variability-adjusted SBP change to be a superior predictor of the BP change to dietary salt manipulations compared with unadjusted SBP change. It is evidence that dietary salt manipulation is a feasible strategy to prevent or modulate BP variability in the general population.

Key Words: body size, renin-angiotensin axes, BP variability.

IMPARED COGNITIVE FUNCTION IN HYPERTENSIVE PATIENTS WITH ASYMPTOMATIC CEREBRAL WHITE MATTER LESIONS


The aim of this study was to evaluate the presence of impaired cognitive function in asymptomatic middle-aged hypertensive patients according to the presence or absence of cerebral white matter lesions (WML) in order to search for a morphologic basis of cognitive impairment. We studied 38 asymptomatic never treated hypertensive patients (24 men, 14 women) aged 50-60 years. All patients underwent 24-hour ambulatory blood pressure monitoring, magnetic resonance imaging of the brain (MRI) and a neuropsychological test battery, measuring attention, memory, intelligence, anxiety and depression. Fifteen (40%) asymptomatic hypertensive patients showed the presence of WML in brain-MRI. These patients exhibited a significant worse performance of digit span, a standardized measure of attention. Moreover, they also showed slightly higher scores on logical and visual memory test. No differences were observed in intelligence, anxiety or depression scales.

Key Words: hypertension, beta-blockers, BMI, renin.

ETHNIC DIFFERENCES IN LEFT VENTRICULAR GEOMETRY MAY BE DUE TO HIGHER PERIPHERAL RESISTANCE AND AN ATTENUATED NOCTURNAL BLOOD PRESSURE DECLINE IN AFRICAN-AMERICANS.

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During the past decade, most ambulatory blood pressure (BP) monitoring research has been conducted in White patients in Europe and North America. Less is known about relationships among ambulatory BP, office BP, and indices of hypertensive heart disease in African-American patients. Thus, we studied 34 previously untreated African-American hypertensives with triplicate office BP, 24-hour ambulatory BP, echocardiography, and metabolic profiles (lipids, insulin, glucose, creatinine clearance). The patient group included 17 men and 17 women, had an average age of 45±10 years. BMI of 29.5±7.2 kg/m², and normal renal function. Awake systolic BP and awake systolic BP load were better predictors for left ventricular (LV) mass and LV mass index than office BP (figure). For diastolic BP parameters, sleep diastolic BP load was the best correlate of LV mass (r = 0.46; p = 0.03) and LV mass index (r = 0.45; p = 0.02). Neither ambulatory BP nor LV mass were related to serum insulin or insulin/glucose ratio. Variability-adjusted SBP change was 2.69 units higher in the high BMI-low renin group than in the low BMI-high renin group (p<0.01), and a greater minimum forearm vascular resistance (3,38±1.36 vs. 2.80±0.94, p<0.01) than whites. Daytime ambulatory systolic blood pressures were similar (127±13 vs. 12±12 mm Hg, p=NS) but the nocturnal decline was smaller (15±8 vs. 18±7 mm Hg, p<0.05) in the low BMI-low renin group compared with the low BMI-high renin group. Thus, heavier African-Americans with low renin levels had a greater SBP response to dietary salt loading than did lean or heavy individuals with high renin.

Key Words: left ventricular mass, hypertensive heart disease.

VALUES OF AMBULATORY BP VERSUS OFFICE BP IN PREDICTING LEFT VENTRICULAR MASS INDEX IN UNTREATED AFRICAN-AMERICAN HYPERTENSIVES.

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To evaluate potential determinants of ethnic differences in left ventricular geometry, we studied resting hemodynamics, ambulatory blood pressure, minimum forearm vascular resistance (an index of arterial hypertrophy), and echocardiographic measures of left ventricular structure in a sample of 46 African-Americans and 83 whites with normal or borderline-elevated blood pressures. African-Americans and whites were similar in age (34±5 vs. 32±5 years, p=NS), BMI (25.1±3.7 vs. 26.1±2.7 kg/m²), and resting blood pressures (111±13 vs. 110±12 mm Hg, p=NS) and diastolic (74±9 vs. 73±8 mm Hg, p=NS) blood pressures; a higher percentage of African-Americans were female (56% vs. 36%, p<0.05) and obese (mean body mass index 26.7±3.7 vs. 25.2±2.8 kg/m², p<0.05).

Despite similar resting blood pressures, African-Americans had a higher indexed peripheral resistance (144±770 vs. 193±470 dynes-s-cm², p<0.01), lower cardiac index (3.13±0.8 vs. 3.7±0.8 l/min/m², p<0.01), and a greater minimum forearm vascular resistance (3.38±1.36 vs. 2.80±0.94, p<0.01) than whites. Daytime ambulatory systolic blood pressures were similar (127±13 vs. 12±12 mm Hg, p=NS) but the nocturnal decline was smaller (15±8 vs. 18±7 mm Hg, p<0.05) and the sleep systolic blood pressure was greater (112±13 vs. 107±12 mm Hg, p<0.01) in African-Americans.

African-Americans had a significantly greater left ventricular relative wall thickness than whites (0.47±0.07 vs. 0.38±0.08, p<0.05). This difference remained significant after controlling for group differences in gender and body mass index, but was not independent of differences in peripheral resistance or sleep blood pressure.

These results confirm an ethnic difference in left ventricular geometry, and suggest that a higher resting peripheral resistance due to vascular hypertrophy and an attenuated nocturnal decline in blood pressure may contribute to the concentric left ventricular remodeling observed in African-Americans.

Key Words: left ventricular remodeling, vascular hypertrophy, ambulatory blood pressure.

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