

REGULATION OF CALCITROPIC HORMONE IN AFRICAN AMERICAN WITH HYPERTENSION

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Previous studies have shown that hypertensive African-Americans (AA) have increased calcitropic hormone (PTH) levels compared to hypertensive non African-Americans (non-AA). The hypothesis for the increased calcitropic hormone levels in this population may be due to a genetic dysregulation of calcitropic hormones unrelated to calcium intake or volume status, a calcium-deficient diet, or calciuresis due to increased sodium intake. Therefore, we examined the level of PTH and calcitriol in hypertensive AAs and non-AAs while on calcium supplementation and on a low (2000 mg/day) and high sodium diet (8000 mg/day). In this prospective study, 27 hypertensive patients with normal renal function were recruited, 11 AA subjects and 16 non-AA subjects. The baseline PTH, calcitriol and serum calcium were measured. Repeat serum calcium, urine calcium/creatinine ratios, urine sodium excretion, and blood pressure were measured following a low sodium and high sodium diet while on calcium supplementation (1000 mg/day). Baseline plasma PTH levels were 48.0 ± 49.7 pg/dl in AA subjects and 35.3 ± 22.7 pg/dl in non AA subjects ($p > .50$). Similarly, the plasma calcitriol levels were not different in the two groups. The baseline values for calcitriol and 24 hr urine Na were: Calcitriol-Non AA= 39.1 ± 3.5 , AA= 31.8 ± 3.9 ($p > 0.09$)

Urine Na-Non AA= 168.1 ± 45.9 , AA= 257.5 ± 66.3 ($p > 0.07$). Since the PTH values at baseline were not different in the two populations, we conclude that genetic dysregulation does not explain the prior increased level of calcitropic hormones observed in AA subjects with hypertension. Since there was no difference in basal sodium excretion in the two populations, it is more likely that the previously reported increased levels of parathyroid hormone in AA subjects with hypertension was due to calciuresis secondary to a high sodium diet.